Romania

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Executive summary

Competitiveness of Romanian wood processing industry/NWFP on external markets is based mainly on the comparative advantage of lower labour costs. Competitiveness was affected till recently by the regulation of timber prices, restriction on timber trade and monopolistic position of the national forest administration.

In the last decade the low level of internal consumption of forest products and the system of selling timber from public estate (NFA and the communal forests) had a high impact on firm development, particularly for firms from harvesting and primary wood processing. Before the years 2000 - 2001, the development of the SMEs and of the associations of the private owners faced difficulties because of lack of public programmes addressing them. Financial system started only recently to have special programmes and/or credit lines for SMEs.

The lack of information is one critical factor affecting entrepreneurship, and it concerns the consumers' preferences, the forest products and services and the way of procure them, the public support of innovation or of SMEs development. Secondly, the low

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intensity of trade relationship within the wood processing chain characterises a weak vertical integration and networking among the SMEs. Entrepreneurship is limited also by the weak organisation of internal market for timber and non-timber products, and by the lack of aggregation of supply from small-scale forestry. Enterprise should innovate more and invest in quality, services, and labelling. Huge potential exist on biomass production, recreation services, wild berries gathering and trade. The National Forest Administration strategy on the market of timber and non wood forest products might be of central importance in introducing new ideas and stimulate entrepreneurship. Enable policy framework, including extension services, change of legal rules, and cross-sectoral approach of the enterprise development are more than necessary for increase the competitiveness of the forest sector.

Research is needed for a better knowledge on the consumption/marketing of forest products and on the timber flow; on the forestry contribution to the rural development; on the expectations and needs of private owners and economic agents upon the policy-decision makers; on the social, cultural and economic value of NWFPS. At the firm level, there is weak probability that the research-development expenditure would increase in short term.

The apparently stabilisation of industrial structure at the regional level may open the possibility in the middle term for clustering and for increasing the networking among the SMEs. However, it has to be stressed here that this structure might be probably different if the rules of selling timber from public forests were changed. Positive signs of development are found on the upper level of wood processing chain (furniture industry, dwellings) where the short term forecast is the diversification of products and maintaining of external markets. The expected growth for the next decade would increase the domestic consumption of forest products; demand for forest recreational services is likely to increase, so do the possibilities for entrepreneurship.

1. Consumption

1.1. State of the art and historical development

Macroeconomic stabilisation, privatisation of state enterprises and alteration of ownership structure on land and forestland has constituted the institutional context of activities in Romanian forest sector since 1990. The transition to the market economy generated a decade of economical contraction. Long time being under the 1990' level, the GDP started to grow only in 2000. In 2003, the GDP recorded a 4.9% growth compared with 2002.

Consumer prices indices show that the final consumption of household remained under the 1990' level, but started to increase since 1998. In 2003, the final total consumption has grown by 6.9% comparing with 2002. The final consumption for the first six months of the year 2004 was with 8.8% higher compared with the same period of year 2003, while the households net final consumption increased by 9.0%.

In the case of sylviculture and logging activities, the production and the intermediate consumption decreasing since 1990 were stabilised for a short period in 1994-1996 but they have been continuously growing since 1999. For the same period, the production and the intermediate consumption in the wood processing industries increased. The

level of annual indices indicates a stronger increasing trend in the wood processing industries than in the case of sylviculture and logging.

Concerning the forest products, a particular low internal demand existed for furniture. Thus in 2001, the furniture and dwelling maintenance accounted for 2.9% of the total expenditure of the households, while the food products represented 52%. The recreation and culture represented 3.6%. Although information exist on the production and consumption of forest products and services (National Statistical accounts, available on Internet), there are no studies providing qualitative explanations, except those relaying on the truism of economic collapse after the fall of command and control economy.

1.2. Forest products' and services consumption

The apparent consumption of roundwood and sawnwood decreased compared to the first years after the fall of command economy. This reduction might be explained by the restructuring of industry, but also by the reducing of the annual allowable cut. The fuelwood consumption had been increased by almost 100% for a short period (1996-1998). The high share of rural population and the use of timber as source of energy make the fuelwood consumption sensitive to climatic conditions in wintertime.

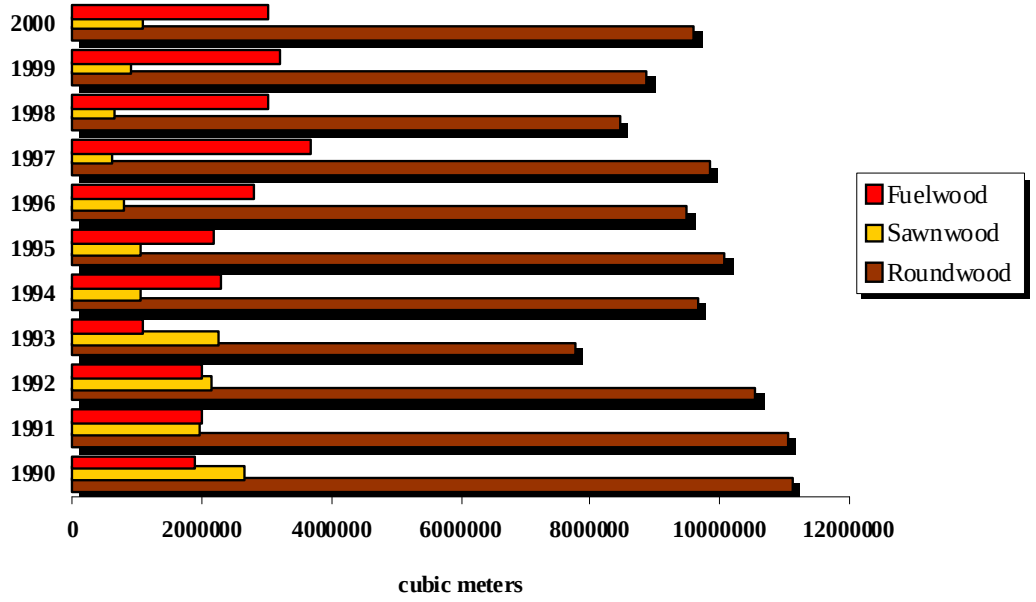
The National Institute for Wood forecasts for 2004 and 2005 an increased apparent consumption of coniferous sawnlogs of 4%, and 13% of non-coniferous, while the apparent consumption for wood residues, chips and particles would grow up by 14% (National Institute for Wood, 2004). The total apparent consumption of sawnlogs and other roundwood for industrial purposes would be around 10.7 million cubic meters for 2004. For the same year, the apparent consumption of fuelwood would be 3 million cubic meters.

The share of intermediate consumption in the value of production is 40% in the case of wood processing industry compared with 65% for the total industry. The index of intermediate consumption shows that the intensity of relationship between wood processing industry and furniture is three times higher than the intensity of relationship between the wood processing industry and the construction branch, or trade.

That means that the wood processing industry is developed in a classical wood-chain concept (logging – primary timber processing – furniture), with little product diversification, oriented rather towards external trade than towards internal consumption.

There is lack of information on non-wood forest products. The available pictures concern only the production from forest managed by the national forest administration, which is mainly sold on external markets (details in the part 4). Picking berries and mushrooms is a source of income and/or food for poorest categories of rural population. There are no information regarding the consumption of forest products and services. In general, the expenditure for services (including housing, electricity, gas and water, considerably high for those living in the urban area) comprises 19.4% from the household expenditures in the case of unemployed people and retired persons, 7.9% in the case of farmers, and 24% in the case of the employees. The share of household expenditure for leisure and culture in the total consumption expenditure is only 3.6%,

being the higher for the category of employees (4.6%) comparing with farmers (1.7%). The trend was positive, in 1997 consumption of services was 19% in the household expenditure, and increased to 27% in 2001. The number of enterprises providing services for the population was stable in 1998-2001, while the number of enterprises providing services for firms sharply increased in the same period.



Source: TBFRA, 2000.

Figure 1. Apparent consumption for roundwood, sawnwood and fuelwood, in Romania, cubic meters

1.3. Market demand for forest related products and services by urban population

There are few market surveys, except some private initiative which are not publicly available. There is certainly demand for recreational service as looking to the traditional practices such the picnic in forests or mushrooms gathering. Nevertheless, there is no information available on this demand. Although the system of forest classification (within the forest management planning) assigns recreational functions to a certain area of forests around localities, often these forests have not the necessary infrastructure to really provide recreational services.

1.4. Main problems and research questions in consumption for enterprise development

The relative poverty in the country and especially the poverty in the rural area lead to the situation of low internal demand for forest products with high value added, and for services. The share of self-consumption is high for non-wood forest products and for timber coming from small-scale forestry.

The consumption is oriented to “basic” and “classical” forest products – roundwood, fuelwood, sawnwood. Nevertheless, small and medium enterprises started to propose products for specific demands, e.g. small wood cottages for holidays or gardens, office furniture, garden furniture. Roundwood is traditionally used to build the houses

especially in the mountain region, but new woody materials started to be used in housing the latest years. The sector of buildings can increase in the future the demand for wood products, as looking to the trend of building sector contribution to the GDP, or to the number of dwellings. Thus the sector of prefabricated buildings with an estimated production in 2002 of 40 thousand units, registered in the first half of the year 2003 a production growth by 66% and of export by 37.3%. The trend continued, thus during the period 1st January–31th July 2004 the furniture and the prefabricated wood houses achieved a total export of 523.3 million euro, e.g. with 19.8% more than in the same period of the previous year, representing 4.8% from the aggregate Romanian export.

The trade chain for forest products is underdeveloped. For example, forest berries from internal production appeared only recently on the supermarkets and there is still a lack of shopping points for basic wood materials. The wood for rural buildings (e.g. fences) are not easy to find everywhere, except at the producer or on markets organised weakly in the villages. The same for fuelwood, which is bought rather directly in the forests, while residues from timber processing industries able to be used as fuelwood cannot be find on the market, but only at the producer. The lack of information, certitude and trade chains for basic wood materials induces costs for the final consumers and maintains the internal timber market underdeveloped.

Research is needed for a better knowledge on the consumption of forest products. There is a need also to understand in what extent the low level of internal demand on wood and services is not due to the lack of facilities on timber procurement/timber flow and information on the supply rather than on the low level of house budget, as far as timber, and basic timber products (e.g. fences, residual timber for rural buildings) have competitive prices compared with substitute materials.
The fuelwood needs a particular attention, because almost nothing is done in order to improve the efficiency of using wood for energy purposes, in private houses or in the public domain.

Annex A: Organisations studying forest products' consumption and main publications and information sources.

The research is carried out within the National Institute for Wood (INL), the National Institute for Forest Research and Forest Management Planning (ICAS) and within the forest faculties.

There are several forest faculties or forest departments in the country: Brasov (faculty) Suceava (faculty), Oradea (department), Cluj Napoca (department) and Timisoara (department). The number of permanent teaching staff varies from 59 in Brasov to 14 in Timisoara. Very few of them are involved in forest economics research.

There is little information on consumption of the forest products. The research institutions paid attention almost exclusively to the forest taxation, forest pricing and forest industry transformation during the transition period. Valuable information may be found on the annual national reports commissioned for the UNECE Timber Committee by the National Institute of Wood.

2. Small-scale forestry practises

2.1. State of the art in research

Private forestry is a relatively new, but important issue of forest policy in Romania. However, it is not a topic of interests for national forest research. There are several explanations of this situation. For long time, the law had been refusing to recognise the situation of private forestry as a particular one, in promoting the same rules of forest management in public and in private forests. However, the main reasons consist in the lack of staff trained in socio-economics and the lack of knowledge and know-how on socio-economics theories applied in forestry. Some studies were done by the National Institute for Forest Research (ICAS) in order to improve the knowledge on private forests distribution, species composition, forest works, and unauthorised clear-cutting of stands (Annex B). Universities and international organisations provided also some few studies on small-scale forestry issue.

2.2. Small-scale forest holding and historical development

In 1948 before the nationalisation, two thirds of Romanian forests were in private hands having an average size of ownership above 3 ha. During the communist period all forests were State forests (Table 1).

The restitution of forests started in 1991 and has been done in two wakes. In a first stage (1991-1999) the area to be given back to the former private owners was limited at maximum one hectare. In the second stage, started in 2000, the maximum of forest properties to be given back was increased at 10 ha. That has for result a scattered situation of forest holdings. The structure of ownership today is 70% State, 13% communes, 8% forest communities, 1% different institutions (churches, schools), 8% private individuals. All forests transferred are originally forestlands, not plantations.

Table 1. Ownership structure and evolution of average private estates (ha)

	1947	1990	1998	2000	2003	%
Total forested area	6,487,000	6,372,000	6,367,000	6,367,000	6,367,000	100
Public forests	1,878,723	6,372,000	6,028,000	5,998,784	4,443,700	69.8
Private forests (individuals)	1,514,486	-	339,000	343,754	499530	7.8
Average area of private forests	3.1	-	0.6	0.56	0.68	-
Forests of different institutions	567,399	-	-	-	72,999	1.1
Forests of the communities	1,330,120	-	-	-	522,808	8.3
Forests of the communes	1,412,972	-	-	-	827,963	13

Sources: Machedon et alii, 1999; RNP, monthly bulletin; Ministry of Agriculture, Forests, Water and Environment

The number of owners is not known. What the statistics record as “owner” (Table 2.) means in fact the former owner, in excluding the eventual transmission of property to his heirs-at-law. There is no information on the number of plots composing the ownership. That is likely that the average area of forest holdings is less than one hectare for private owners According to a study from 1997, 70% of private owners hold less than 0.3 ha of forests.

Table 2. Average area and number of forest holdings

	Total surface ha	**Number of owners**	**Average area -ha**
Private forests (individuals) – law 18/1991	344,277	503,654	0.68
Private forests (individuals) – law 1/2000	359,007	229,696	1.56
Total forest of individuals	499,530	700,000*	1.00
Forests of different institutions	72,999	4,158	17.55
Forests of the communities	522,808	1,506	347.15
Forests of the communes	827,963	1,629	508.26

*: Estimation

The forests hold by the different institutions (schools, churches) still belong to the small-scale forest category because the maximum transferred to these entities was 30 ha. The majority of communes and forest communities' properties can not be characterised, in the Romanian context, as "small-scale" forestry.

The restitution of forests is completed at 97% nowadays. Particular for Romanian case was the "two wakes" restitution, made by two different laws, in 1991 and in 2000, which increased the scattered structure of private forests. For example, if someone had 10 ha of forests before the war, the first wake of restitution gave him back one hectare, and the remaining 9 hectares were been split between other neighbouring former owners. When the second restitution law came in 2000 to recognise the ownership up to 10 hectares, the owner remained with one hectare in the first location and received the other 9 hectares somewhere else.

In some counties (Bistrita), private forests became the dominant ownership form. That should influence locally and in short term the market for roundwood and sawnwood.

2.3. Small-scale forestry practices

The studying of private forests and private forestry is only of recent date. A survey on private owners' attitudes and behaviour was done in 2000 in the north part of the country (counties Suceava, Neamt and Botosani). It appears that the main preoccupation of private owners was to defend the woodland against timber robbery, rather than to comply with the forest management plan or the formal rules for forest management. Most of them acknowledged that they were harvesting two or three times the official allowed quota. For 25% of them the forest represents a legacy for children, while 8% of owners are effectively pronouncing for the preservation of forests. The main expectation of owners is that the State must provide the protection of forests against illegal cutting, and provide training on forestry (Bouriaud, 2001).

The forestry practices are formally submitted to the same rules than those implemented in public forests. High harvesting age, large size of roundwood, small areas for clear cuttings and natural regeneration are preferred. The harvesting of trees is subject of marking with a forest hammer by a forest official, often being a representative of the National Forest Administration. In forests without a forest management plan (that is the case of almost all individuals' forests), the harvesting is based on an official quota established per hectare and per year. A usual way to legally exceed this quota when

marking is to declare that trees have to be harvested as "sanitation cutting". This explains why the volume harvested as final cutting was inferior to the planned volume, while the sanitation cuttings exceeded the estimations (Table 3).

Table 3. The partition of harvested volume in private forests (1990-1999)

Type of sylvicultural intervention	Volume to extract 1000 m^3	Allowable cut m^3/year/ha	Volume marked for extraction 1000 m^3	Realisation of planned crop %
Final cutting	2,648.5	0.79	873.0	34
Conservation cuttings	156.7	0.05	71.2	45
Selection	259.5	0.08	88.1	34
Thinning	1,813.5	0.54	861.2	47
Sanitation cuttings	2,175.1	0.65	3,034.2	139
Total	7,053.3	2.11	4,927.8	70

Source: MAPPM-RNP-ICAS, 1999

The share of harvests from the private forests in the total harvested volume in the country was between 4 and 10% in the period 1994-2001 (Table 4). Based on it, one may estimate the contribution of private forestry to the national GDP as being less than 0.06%. The contribution of small-scale forestry may increase up to 0.20% of the GDP when the restitution process would be ended. In the year 2004, the volume to be harvested from private sector attained 16.7% from the total volume (annual allowable cut), and it will be slightly increasing in 2005 at 19.2%. Nevertheless, most of the small-scale forestry production would be self-consumed for the household needs.

Table 4. Volumes harvested in small-scale forests

Year	Volume harvested in private forests 1000 m^3	Total harvested volume 1000 m^3	Contribution of private forests in the total harvests %
1993	559.9	13,590.7	4.1
1994	552.3	12,897.9	4.3
1995	628.6	13,768.6	4.6
1996	984.7	14,755.8	6.7
1997	1,240.6	14,452.3	8.6
1998	1,138.9	12,598.6	9.0
1999	1,202.1	13,692.8	8.8
2000	1,309.6	14,232.7	9.2
2001	665.5	13,375.1	5.0
2004*	3,000.0	18,000.0	16.7
2005*	3,500.0	18,200.0	19.2

*forecast

Source: National Forest Administration, Internal Report; Governmental ordinances for approving the annual allowable cut

Forest owners, institutions and forest communities are free to choose the way to sell timber. The communes have to respect the same rules of selling timber than those applied in forests managed by the National Forest administration (obligation introduced by governmental ordinance n. 85/2004), e.g. they are obliged to organise auctions for selling timber. Timber is sold on stand to the harvesting companies, also on forest road. Romania was one of the first transition countries in Europe to introduce an auction system for allocating harvesting rights for standing timber (stumpage) in public forests

(1995). The auctions involve small tracts of forestland that must be harvested within a short period, typically less than one year from the date of the sale. In the individuals' forests, the family/friends work is the main way to cut and transport timber at home. When the volumes are important, the owners conclude arrangements with private contractors. Nevertheless, the final cuttings are not done systematically, which might be a first sign of forest abandonment in middle term. Regarding the non wood forest products, one may estimate their economic importance as being neutral. On the hand the non-wood forest products are free of access; on the other hand, when harvested by the forest owner there are almost exclusively for the household needs, not for market.

The constitution of forest associations is in progress. During the last decade, the association of private owners has been motivated the need to ensure protection against timber theft rather than by the need to organise themselves the forest works. Thus, in 1997, some 15% of private owners have been organised in order to fight against timber robbery (Giurgiu and Popescu, 1997). The first private structure for the management of the private forests was established in April 2002. Since then, a number of 118 private forest districts (ocoale silvice) were created by private owners, individuals, communities or communes. These private structures manage now (mid 2004) 528,326 ha, which represents one third of private forests area. Other 14 thousand ha private forests of individuals were managed by the National Forest Administration (NFA) through contracts. Around 200 thousand forests of communities were in the NFA management as well. Beside that, the NFA concluded contracts with individuals for providing guarding services against timber robbery on 55 thousands ha (19,508 private forest owners).

Successful experiences of association appeared when forest officials from the NFA were actively involved in the local communities' life and organised meetings and workshops with people. The results of the survey mentioned above show that where the forest officials were involved in the process of associating, the owners become more likely to participate in to local policy processes, and they were more likely to ask about extension services.

2.4. Policy framework and production conditions

The core idea of policy system is that the forests have to be managed according to the same rules irrespective to the form of ownership. The policy framework is represented mainly by regulatory means, amongst which the forest law and the governmental regulation take a central place. Law implementation in private forests is monitored by a forest inspection. The forest management has to respect three main categories of duties:

- the conservation of forested areas, which consists of prohibiting irregular deforestation, harvesting less than the annual increment, and an obligation to regenerate the forest after clear felling or natural damage;
- the preservation and the improvement of forest stand quality, which consists of undertaking measures to prevent and combat pests and diseases, restrict grazing activities, and undertake sylvicultural operations such as selection or thinning;
- the compliance with a (simplified) forest management plan.

According to the Romanian forest law the owners who proceeded to afforestation of agricultural land have the possibility to choose the rules of management to apply. The plantations made on agricultural land are not submitted to the same rules of management than the forests. The Law 141/2001 defines several categories of activities eligible for annual funding from the central budget or for free technical assistance provided by the NFA. However, during the last decade the state support for the non-state forests has been extremely limited, e.g. some free seedlings and some technical advice for afforestation works. Despite the legal provisions, there are no effective financial incentives able to influence the management behaviour.

The last years saw the development of several small projects supporting directly or indirectly the local associations of private forest owners and providing them some extension services, funded by international donors or foreign governmental agencies. The main governmental institution in charge with the private forestry issue is the Ministry of Agriculture, Forests and Rural Development. The Forest Inspectorates, which role is to monitor the law implementation, are presently under the structure of the National Guard for Environment. There is little institutional co-ordination between the sector-based agencies and organisation, e.g. NFA and other governmental agencies relevant for the forest sector, such the National Agency for Rural Development, the National Agency for Mountainous Areas or the Regional Directions for Agriculture. Providing extension services is in the charge of the National Forest Administration and of the Forest Inspectorates. Their efficiency with this respect is hampered by the lack of funding, staff and training.

The Association of Private Forest Owners (APPR) is a national level umbrella organisation established in 1998 representing all categories of private forest owners in Romania. It is a registered non-governmental, non-profit legal entity and its funding comes from membership fees and sponsorship. By June 2003 its membership included 23 regional branches with about 300 local and county associations, communes, and town halls and circa 90 individual members. According to its Executive President statement (June, 2003) it is estimated that APPR represents through its membership more than 1 million forest owners and members of the undivided common ownership entities owning about 900 thousand ha. The APPR's main aims are:

- representing private forest owners at the national and international level;
- promoting the awareness of forest ownership;
- supporting the understanding of forest legislation, in particular the rights and responsibilities of private owners;
- providing support for members at local level in all aspects of sustainable forest management.

Despite its strategic role, APPR started to become active in the Romanian forestry arena only recently and major efforts to improve its operational activities have only been recorded in the second part of the year 2003. The role of the APPR as active provider of extension and information services is likely to increase in the frame of the external funded "Forestry Development Programme" launched the latest year.

2.5. Summary: Supporting and limiting factors for enterprise development in small-scale forestry and barriers to entrepreneurship

The small scale forestry may potentially have a powerful influence in forest economy, as far as the area covered by this category represents approximately 800,000 ha on a total of 6 million ha. Two main problems exist on entrepreneurship in small scale forestry: the problem of property rights, and the problem of association in order to realise scale economies.

Securing the property rights was the major problem of the last decade, e.g. clarify the ownership in the restitution process or in the Courts and fight against timber thefts. The National Forest Administration started at the end of latest year (2003) to sign contracts for ensuring the forest guarding in private forests of individuals (50,000 thousand ha at the end of September 2004, or 7% of the area given back to the former owners). Association of owners is in progress, and will continue on the "core" example of communities and communes which manage themselves their forests. Examples already exist among the recently created private structures, which have been able to certified forests, or to find external sources for financing forest activities. The management of human resources is of greatest importance for the newly created management structures. Impediments to entrepreneurship are represented by:

- Some few examples illustrate the policy framework of forestry in Romania. Not only the forestry activities are strongly regulated, but also the timber market. Most barriers for entrepreneurship exist at the level of raw material procurement. Particularly on a market dominated by the supply coming from the public forests;
- the low exclusivity of rights on non-wood forest products (berries, mushrooms) and activities (hunting);
- the lack of training on economics, management and marketing;
- the lack of resources for extension services and training, including the slow implementation of forest expertise and consulting;
- the difficult functioning of forestland market.

The slow delivering of the official property entitlements still hampers the transmission of forest properties on land market. Nevertheless that innovative management style can make the private forest enterprise viable from an economic viewpoint. These innovations concern the certification of forests, made in one private forest district (for Forest District Năruja, with an area of 20,000 ha, certified by Smartwood) and in progress for other three (National Institute for Wood, 2004), and the success in obtaining international donors funds for nature conservation.

Annex B: Organisations studying small-scale forestry and main publications and information sources.

The main research institution is the ICAS – the National Institute for Forest Research and Forest Management Planning. The institution represents an autonomous branch of the NFA.

Research activities are provided also by the Universities but few things are done specifically for private owners.

The Ministry of Agriculture, Forest, and Rural Development organised some courses in several departments for informing and training private forest owners with support from a NGO. For most representative research see table below.

Table 5. Studies on small-scale forest issue

Author	Year	Title	Main information or contribution
Popescu and Giurgiu	1997	Contribuţii la cunoaşterea pădurilor particulare din România	Structures of private forests
Bouriaud	1997	Aspecte ale constituirii proprietăţii forestiere private în România	Historical development of private rights on forests
RNP-ICAS	1999	Studiu – inventariere a pădurilor private privind compoziţia, vârsta, starea fitosanitară şi posibilităţile de recoltare de masă lemnoasă	Structural description of private forests
MAPPM-RNP-ICAS	1999	Studiu privind volumul de material lemnos de recoltat din pădurile private	Potential of harvests in private forests
RNP-ICAS	1999	Studii complexe de fundamentare a soluţiilor de gospodărire a pădurilor proprietate privată din România	Evolution of harvesting in private forests in the period 1990-2000
INDUFOR/ECO	2001	Implication of land restitution programs on achieving WB/WWF alliance targets in Eastern Europe and the Central Asian Region. Country case study. Romania	Features of land restitution, consequences on economic efficiency
Bouriaud	2001	Sustainable forest management: with or without privately owned forests? A Romanian case survey.	Survey on owners attitudes and motivations on cutting issue

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3. Wood-processing industries

3.1. State of the art and historical development

The main processes influencing timber industry development in the last decade were:

- The privatisation of public enterprises. All wood processing industries were in public ownership before 1990. Although private firms have been early established in harvesting and in primary wood processing, the State ownership still prevailed until 1997.
- The liberalisation of foreign trade and the regulation of quantities and timber products allowed for the exportation. The evolution of Romanian forest industry was influenced by the external market demand, especially for the sawnwood and the furniture, but also by the regulation of the foreign trade. Thus, the export of the sawnwood was controlled by quantities until 1998, and the export of the roundwood allowed was prohibited till 1999.
- The public regulation on the timber procurement. The regulation concerned the annual allowable cut, the setting of the reserved price for timber sold on stand and the procedures of selling timber from public forests. Thus, the annual allowable cut has been reduced drastically after 1990 e.g. from 18 million cubic meters per year at 13 million cubic meters per year. Beside that, the forest sector faced important changes on the way of setting timber prices. Until 1994, the reserved price was agreed at the central level by the national forest administration and the harvesting companies. Since 1995, the introduction of auction as compulsory way of selling timber from public forests completely changed the price level and structure, but also the relationship between the contractors and the timber supplier.

At present, market regulation is the main mechanism of timber pricing, and the production of timber industries follows the market demands, not the planned indicators as in the command and control economy.

The first sector emerging from a decade of economic crisis (1990 - 2000) was the furniture sector, which has been recording a constant development since 1994 by re-orientation of capacities according to the new markets and by a sustained effort to modernise. The production of the furniture industry exceeded in 1998 the level recorded in the year 1990, and is still keeping the increasing trend, e.g. the total turnover of the furniture industry growth up by 9.6% in the first semester of the 2004 compared with 2003.

After a decade of difficulties, where the public policies aimed at improving the efficiency of timber industry by means of restructuration, privatisation, regulation of foreign trade and raw material procurement, there are recent signs proving a policy of modernisation, diversification of products and growth of high value added products. The factors that induced this evolution were the foreign investments which occurred the latest three years, the growing of building sector and the stabilisation of external markets. The exports of forest products accounted in 2000 for 10% of the total value of Romanian exports. In 2003, the furniture industry and the wood housing industry accounted for 4.8% of the total Romanian exports; nevertheless, the high share of export in the furniture industry is associated to a high share of unprofitable firms. In the year 1998, when the export represented 60% of the furniture turnover, only 47% of the enterprises were profitable (Boscaiu and Mazilu, 2001).

3.2. Wood processing industries

Before 1990 only 244 large companies existed in the country for wood processing, pulp and paper and furniture. The companies were split to facilitate their control and to be more attractive for privatisation. For example, the main company for harvesting has been split in 1993 in three regional enterprises, then in 17 enterprises, and then submitted to privatisation which finished in 1999. During this time, the SMEs were set up with private capital mainly for the production of sawn timber and building materials. In the last period, private capital has been invested also in furniture and the production of pulp and paper. Consequently, the configuration of the forest sector is completely different from 1990 (Table 6).

Table 6. Number of companies from forest sector, in 1990 and in 2002

	1990	**2002**	**From which**		
			Large	**Medium**	**Small**
Wood processing industry	107	5235	65	245	4925
Furniture	114	2965	180	1225	1560
Pulp and paper	23	434	26	119	289
Total	**244**	**8634**	**271**	**1589**	**6774**

Source: National Institute for Statistics

There are more than 5,000 companies in the wood processing industry, from which only 65 are large companies (Figure 1). This sector is at 99.8% private. The total number of the employees in wood processing industry is of 3.4% out of the total number of the employees on the industry sector. In the furniture industry, the number of companies is around 2,900, from which 2,785 are small and medium sized companies, mostly founded after the 90's.

In 2002 the furniture exported for 441 million dollars, and represented:

- 2.1% of the volume of the industrial production;
- 4.4% of the total volume of the export;
- 4.9% of the number of employees that work in the industrial sector.

Regarding the gross value added, at the level of the year 1998, it was:

- sawnwood, coniferous: 692 thousand lei per m^3 (63 US$);
- sawnwood, beach and oak: 1200 thousand lei per m^3(108 US$);
- MDF: 733 thousand lei per m^3 (66 US$);
- Pulp: 165 thousand lei per m^3 (15 US$);
- Paper: 1263 thousand lei per m^3 (11 US$).

The furniture industry is strongly oriented towards export. Thus, in the period 1992-2003, the value of furniture export was between 70 and 86% of the value of production, and represented between 5 and 10% of the total Romanian exports. Furniture export has grown up in the first half of 2004 by 20.4% compared with the latest year, but remained under the level of the year 2002, with only 419 million euro. The import increased for the same period by 14.6%, the value being 63 million euro. The main export markets were as usual Italy, France, Germany, Austria, Holland, and United States. EU countries import from Romania furniture for living room (22.7% in total furniture import), chairs (19.7%), and furniture for bedroom. The Figures 2 - 5 (source: National Statistic

Institute, 2003) show the evolution of companies by size, number of employees, turnover, and form of ownership. The data are for the period 1998 (or 1996) to 2001. The number of firms with the number of employees comprised between 50 and 99 was constant, while the number of SMEs was continuously rising. They represent more than 95% in the total number of firms from the wood processing industries (Figure 2), and 38% of the number of employees (in 2001). The evolution of SMEs turnover is noteworthy, from 85 million euro in 1996 to 339 euro in 2001. However, it represents only 40% of the total turnover of the wood processing industry, and less than 30% from the wood processing industry exports. The public regulation of export presents importance to understand the evolution of forest sector. Before 1989, all export/import activities were planned and executed by a state enterprise specialised in this activity. From 1990 to 1997, it was not possible to export any rough material (logs for pulp or roundwood). Only the export of processed forest products (e.g., lumber) was allowed, on the basis of a quota system. Difficult to implement and to control, this system was replaced in 1998 by a license system, the license being required "only for statistical purposes". This opened the external market for all forest enterprises. The value of exports of wood processing industry almost doubled in three years only: from 127 million euro in 1998 to 249 million euro in 2001 (Figure 5). The turnover was the same evolution, from 288 million euro in 1998 to 485 million euro in 2001 (an increase of 70%). There is to remark that the prohibition of exporting rough timber material (roundwood) did not lead to an increase of local furniture production. During the time while the rough timber export was prohibited, the export of furniture decreased and the domestic production of furniture decreased as well (Press release, 24.04. 2002).

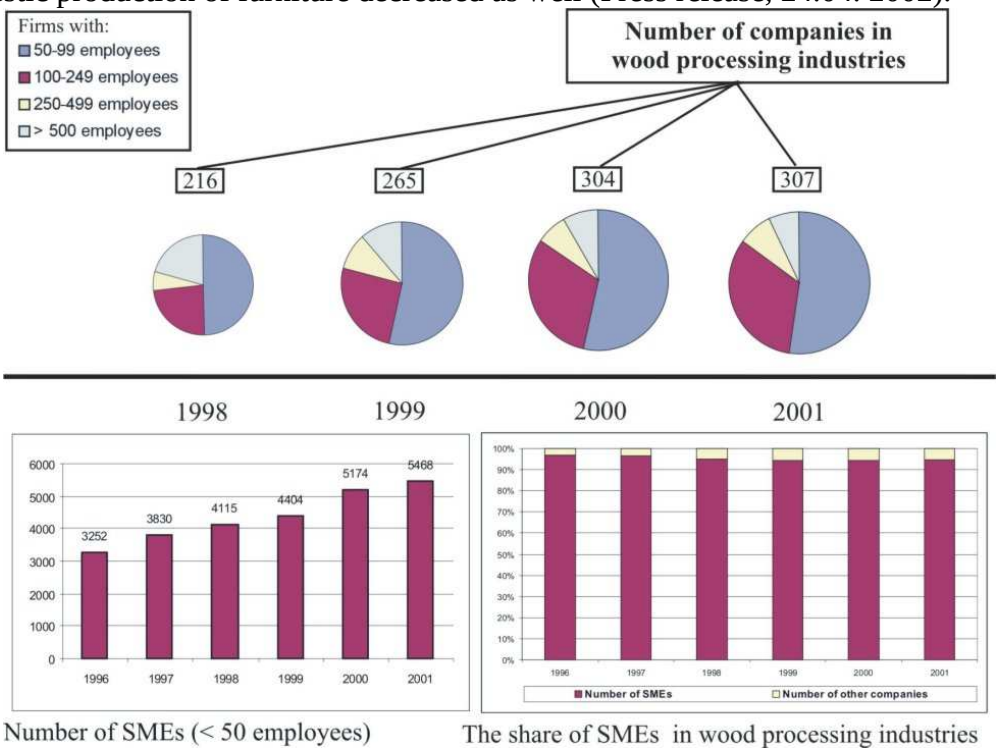

Figure 2. Number of companies in wood processing industries

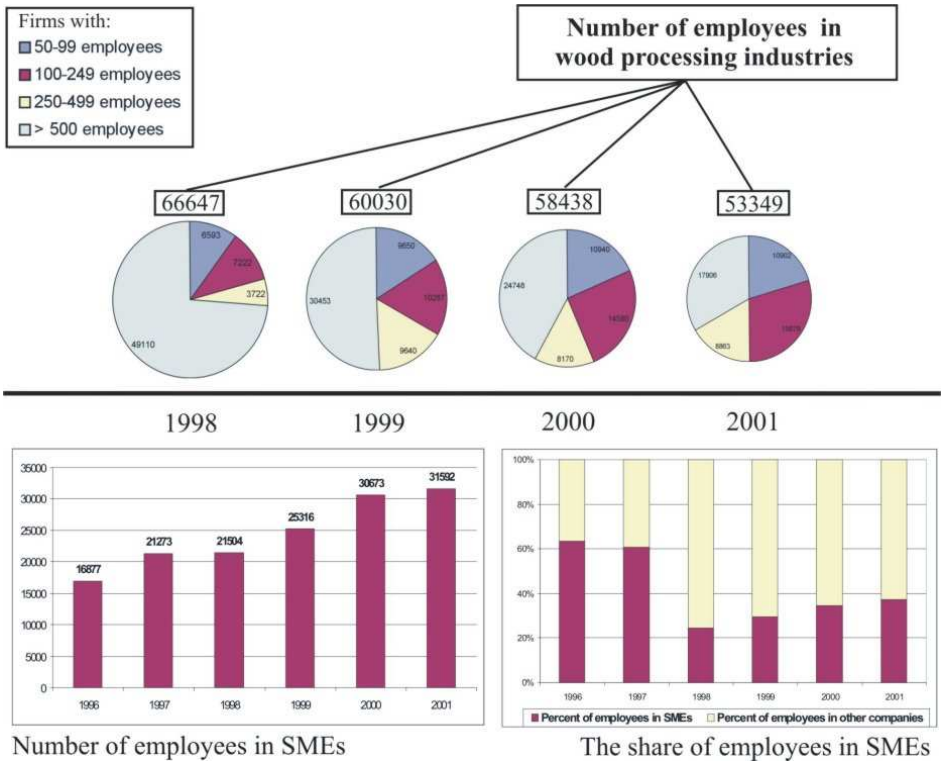

Figure 3. Number of employees in wood processing industries

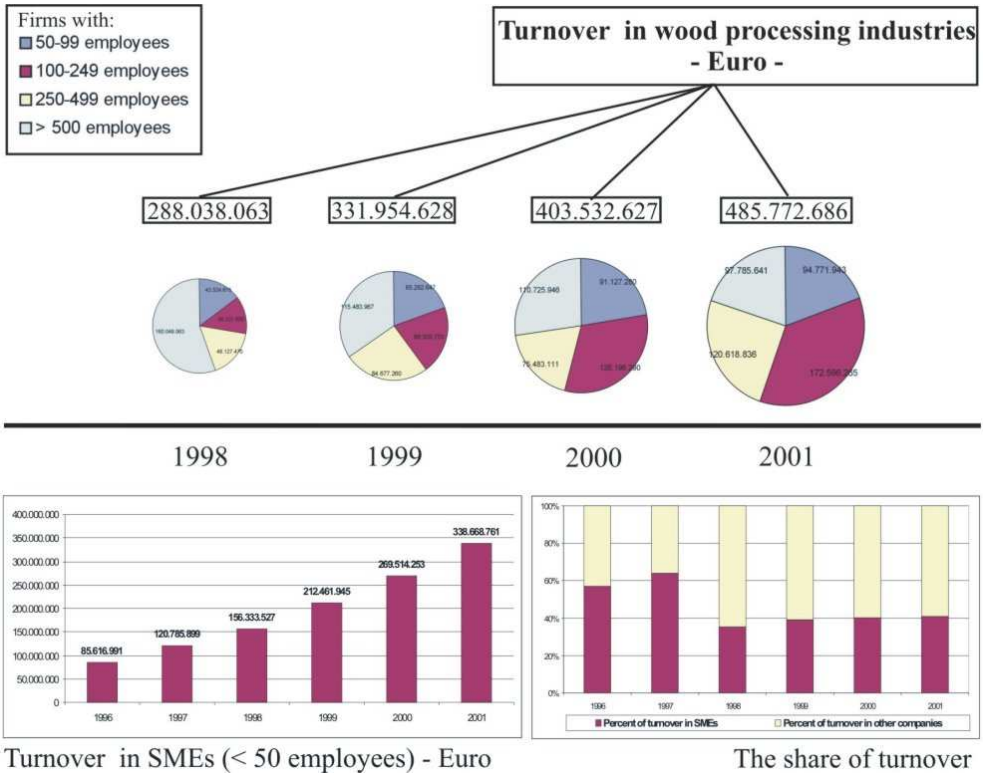

Figure 4. Turnover in wood processing industries

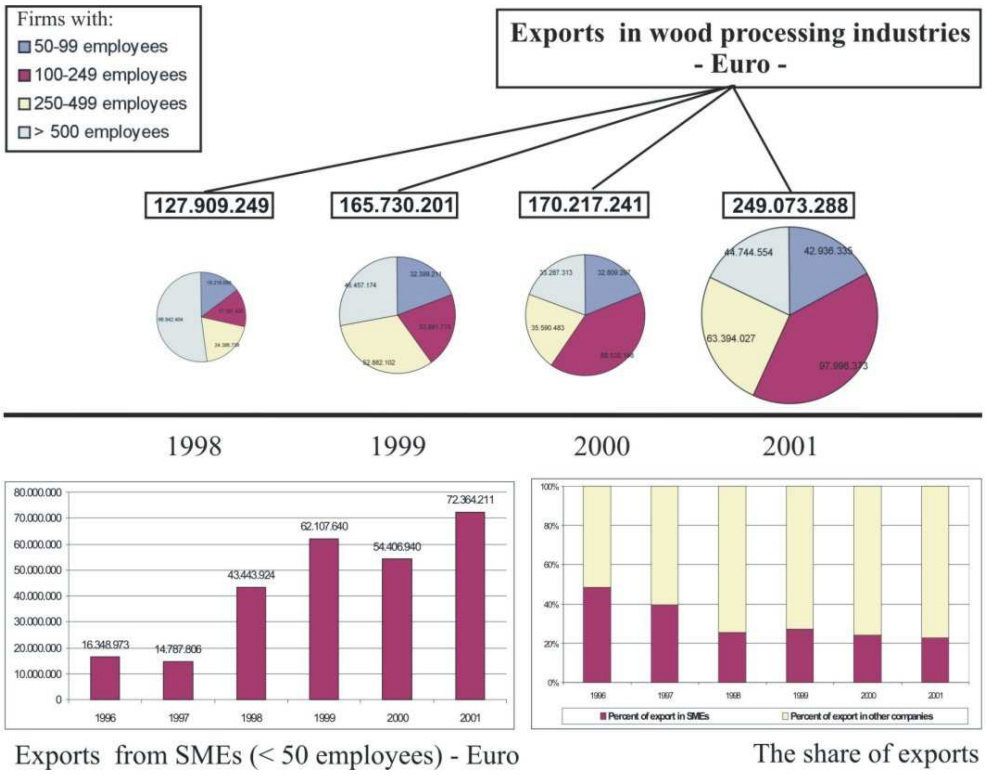

Figure 5. Exports in wood processing industries

The total foreign investment for the period 1990-1999 was 815 million dollars. There are regional differences regarding the timber market and the regional competition in primary wood processing industry. In the highly forested departments from the North part of the country is characterised by strong competition, great number of firms, and high investment level. The Western part of country presents weak competition, low demand for timber product, but very specialised. Some division of NFA experienced international auction system for selling high quality logs and proved to have an aggressive marketing strategy to promote their timber. Third, the South part of the country is characterised by low demand, low forest resource, weak competition, and a structure of forest enterprises similar to that existing before the privatisation.

The regional differences concerning the wood production are illustrated in the Figure 6. One may see that the wood production has an increasing trend in Northeast, South and West, while in central part, Southeast and Northeast the production is rather stabilised. This is related with the windfalls from 2001 in North, but also with the changes in ownership. Changes in ownership were important, in counties like Bistrita or Brasov the State is not anymore the main forest owner.

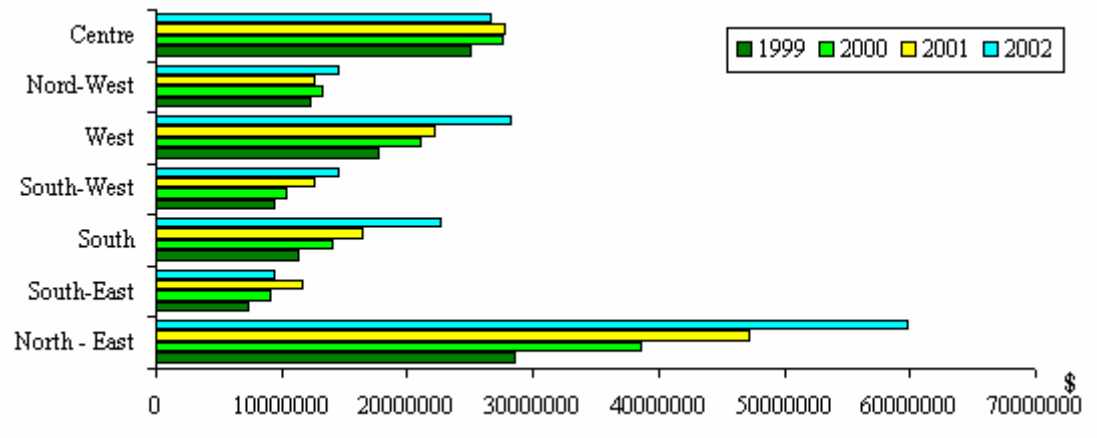

Figure 6. The contribution of the production of wood processing industries in the regional economy

The small logging enterprises are important for the rural development. In 2002 the National Institute of Statistic recorded a number of 184 familial logging associations which harvested 280,299 m^3. The harvested volume per hectare varied between 1-140 m^3. A number of 2500 companies harvested 7.3 million m^3, and one million m^3 has been harvested by the three ruling companies that dominated the market (i.e. Forestar, Euroforest and Romanel), the latter harvesting 80,000 m^3 of salvage caused by the windfalls and wind throws.

There are no studies regarding the entrepreneurship culture in the forest sector. The forest sector was dominated in early transition towards a market economy by an exclusivist and elitist criteria in establishing trade partnership, which may be summarised by an often heard formula: “only a forester knows how harvest a forest”. The non-foresters and the private contractors have been discriminated for the access upon the raw material resource. According to the representatives from small companies, intimidating strategies might be recorded against them during the auctions, or the situation is that they are strongly dependent on large firm services regarding the information on market or even the contracts for selling their products. Opinions exist (Tobescu, www.forestry.ro) that the corruption that Romania faced and is still facing and the uncertainty on the rule of game shaped two different organisational culture within the firms of forestry sector: on the hand, there are the firms which tried to benefit from the possibilities to free-ride the system, possibilities located along the whole production chain, from the marking of timber in the forests to the tax evasion, involving payment of the bribes and the collusion in timber auction; and on the other hand, there are the firms acting as the competition were fair.

3.3. Wood processing industries practices

Current small and medium scale wood processing industries practices:

- ownership characteristics:

  Amongst the large companies (more than 50 employees), only nine remained in public ownership, the others 298 being private. The small companies are all of them in private ownership.

- the share of wood used by SMEs in wood processing (% of the total wood harvesting)

  The SMEs harvested in 2002 more than 8 million cubic meters from a total of 12 million that means approx. 70%. There is no information about the wood chain flow. In the survey undertaken by the National Institute of Statistics in 2003, amongst the 1693 respondent firms, 61% of them (1029 firms) practised both harvesting activities and wood processing activities while 39% of them (663 firms) only had harvesting activities.

- trade characteristics (raw material import, product export flows)

  The wood processing industry is a net "exporter" for roundwood, sawnwood, plywood, and fibreboard.

- the share of harvesting done by wood contractors, wood contracting practices

  The system of the annual allowable cut is designed so to distinguish between the industry needs, the population needs (mostly the rural population needs on firewood and timber for construction) and the NFA share, which is the volume that the NFA will harvest by itself. The timber is sold on stands, little percentage of timber sales being done as cut logs. Thus the wood contractors are also the wood buyers. They harvest and buy approximately three thirds (70%) of the total harvested volume in the country that is the timber to be harvested for industrial purposes (Figure 7). The wood contractors might do also some harvests on the volume reserved for the population' needs.

- technical characteristics of production/competitiveness

  There is generally acknowledged that technologies and equipments are too old (80% are more than 20 years old). Little attention is paid to the management of quality. Representative of the forest industry acknowledged that the export advantage of Romanian forest products is exclusively given by the low labour costs. In 1995, 3.85% of the total harvested volume has been utilised for new products. The percentage decreased to 0.66% in 2000.

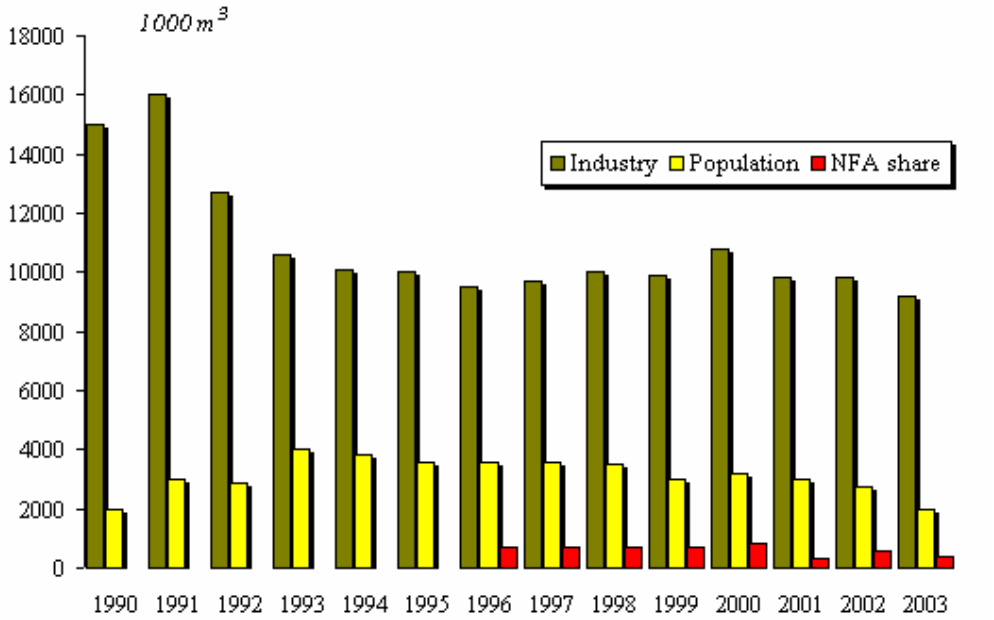

Figure 7. The share of harvesting according to the main destination of wood

- management (e.g.: family enterprises, joint enterprises, …, stock companies)
  The National Institute of Statistic accounted a number of 2246 firms with activities in wood harvesting, from which 1939 were societies with limited responsibility, 81 shared-stock companies, 148 family associations (enterprises), 35 others, and 43 represented NFA units.
- general educational background, owner and staff: no information about.

3.4. Policy framework and production conditions

There are three trade associations that officially represent most of the forest logging and wood industry operators: the Association of Romanian Foresters (ASFOR), which includes the great majority of the logging, transport and primary processing operators; the Association of Romanian Furniture Producers (APMR), which includes the furniture and other wood industry operators; and the Association of Romanian Pulp and Paper Producers (ROMPAP), which includes the pulp and paper industry operators. The objective of these trade associations is to represent members' interests to the official authorities. The main source of funding is an annual fee paid by members. The three organisations are involved in most of the political negotiations related with the timber trade.

The formal policy framework of wood processing industries are composed by all regulations industry-related, and by several forest-sector based regulations which address the issue of timber selling and the issue of the control of timber flow as measure to fight against illegal logging and illegal trade. The industry-related policies focus the latest years on the development of small and medium size enterprises, on the introduction of innovation and entrepreneurship, on change on technologies, on adopting common quality standards and accounting systems, etc. Several governmental programmes are running: in 2002 and 2003 these programmes financed 3200 projects, and contributed to the creation of 1300 places of work for young researchers in R&D institutions.

A special program has been launched by the local Chamber for Industry and Agriculture from Suceava County to speed up the process of starting a new firm. The Chamber would perform all the administrative procedures for registering a new firm on the behalf of the entrepreneur. At the National level, the National Agency for the SMEs succeeded in his lobby to promote a governmental regulation for reducing the time and the complexity of administrative procedures for creating a firm. After September, 2004, it should be possible to register a new firm in only three days.

Nevertheless, the Romanian Association of Industrials (UGIR, complains about the not-business friendly milieu, characterised by the strong intervention of the Government, via the administrated prices, the opaque public markets, the heavy subsidies for non efficient public enterprises, the tax burden, the lack of social dialogue when formulating economic policies, etc. Administration is said omnipresent and very powerful (http://www.ugir1903.ro/). The UGIR Economic Memorandum estimates that 1% of the firms' turnover is spent for softening the administrative constraints by payment of bribes to different officials.

Administration is involved also in timber sector for setting the reserve price in auctions for selling timber from public forests. As far as 70% of timber is sold by the NFA under the auction system, the regulation of auction is an important factor influencing the competitiveness of forest sector at whole, but particularly the development of SMEs with harvesting activities. In spite of the positive developments concerning the auctions system, a considerable number of details suggests that further institutional strengthening and improvements are needed (Marochko et al., 2003):

- constantly changing in government agencies and changes in the number and location of regulatory authorities (forest department moved from environment to agriculture, then to agriculture and rural development; the regulatory body moved from agriculture to national authority for control, and so on) has influenced investments in the processing sector and so the demand for wood and forest products;
- the NFA changes on its structure, managers, executive, etc. are strongly related with the political agreements and legislative elections schedule, which induces instability on the timber market and on the rules applied to wood contractors;
- in the last two years (2002 and 2003), the Ministry was not able to set up the annual allowable cut on time. Therefore, the organisation of auctions was postponed, and those already organised were cancelled. When an auction takes place two months late, it is more likely that firms will not finish the harvesting operations before December 31, when the remaining timber is re-inventoried and rescheduled for harvest the following spring. The firm may incur penalties for delay in carrying out the contract even though it was not responsible for delaying its harvesting operations;
- some respondents declared that smaller firms should not compete in the same auctions along with big firms because they have an unfair advantage: often the small firms do not declare all their employees; they may easily evade taxes; and they tend to cluster around a lot bought by a big firm, in order to free-ride on the large firm's security force;
- there is no integrated national timber market, as firms have little mobility to do business in other forest directorates, where they lack a network of relationships for marketing the waste wood and for security against theft. An explanation may be insufficient transportation infrastructure.

3.5. Summary: supporting and limiting factors for enterprise development in wood processing industries and barriers to entrepreneurship

For instance, the rate of creation of new enterprises in the Romanian economy is by far higher in urban area than in rural area (28,902 enterprises created in urban area in 2000, against 4,739 in rural area). The average number of new created enterprises was 1.5 for 1,000 inhabitants in 2000, with an average of 2.9 employees (Dumitru et al., 2004). In rural area, the rate of firm creation is only 0.5 enterprises for 1,000 inhabitants.

As overall evaluation of forest sector situation, there is a need to remark the lack of concentration of forest industry and, in the same time, the low density of trade relationship, with few purchasers, few intermediaries and one or few suppliers for raw material. Although there are a strong domestic forest industry and an important internal demand, the timber products market are underdeveloped when looking to the chain of distribution to the final consumers.

The competitiveness of the forest industries was affected in the recent past by the low productivity, the relative out-of-date equipment and technologies, by the lack of experience in management and marketing on international/national markets, and by the difficulties that the Romanian producers had to meet constantly the partners' quality requirements. These impeding factors tend to be removed slightly, with the consolidation of Romanian producers on the European markets for furniture, the starting of export of panel housing and the increased foreign investment which plays important role in spreading the innovation and a certain culture of partnership.

Barriers to entrepreneurship come from bureaucratic procedures when start a firm; from the lack of credit available for SMEs on the financial markets; from the lack of information concerning the markets and the public policies for SMEs development; from the lack of co-operation between R&D institutions and the private sector; finally, by the lack of well trained staff in rural area.

Supporting factors in enterprise development can come via the technological change which would require investment and via the change in management practices and strategies. The public policies in support of SMEs, innovation, technological change, and environmental concerns integration have an important role in forest enterprise development (National Agency for SMEs, http://www.animmc.ro). Yet, their effectiveness is hampered by: the lack of co-ordination between the general economic policies and the sector-based policies; the general acknowledged corruption/political dependency of the Romanian administrative system, which lead to unfair competition while obtaining credits, financial subsidies or technical support from the State; the heavy weight of State intervention and State ownership in non efficient and non competitive sectors of the manufacturing industry.
The research may provide policy relevant results in investigating several issues, from which: the innovation and the technological change (how it is introduced and by whom, which effects on sustainable development); the evaluation of informational and financial means on stimulating the entrepreneurship in forestry; the structure of wood processing chain; the effect of timber procurement procedures on the structure of wood chain. Life cycle analysis could be of help to optimise wood channel production and trade. Even in the context of the very low amount of R&D in the firms' expenditures, both the research and the private sector would gain from a stronger co-operation.

SWOT analysis

Strengths	**Weaknesses**
• high quality and diversified, valuable raw materials available • rapid development of the SMEs • interest for innovating, interest for information and co-operation • well educated/trained workforce • tradition and experience on woodworking industries • comparative advantage on labour costs • traditional trade relation with European partners, markets kept over the last decade	• limited capacity to negotiate international contracts due to the lack of experience • low profitability of harvesting operations • poor marketing, competitiveness and product development • lack of experience in promoting innovation • low educational level in the field of management and marketing • high share of low value added products • no attractive design of products • poor entrepreneurship • low internal demand and poverty • national brands of producers are not very known • poor knowledge on international markets and on consumers' preferences • not addressing specific demands, e.g. luxury products
Opportunities	**Threats**
• raw material available in the country (80-90%) and accessible at 60% • consumer' income on targeted markets are increasing • similar products are profitable • public programmes for SMEs, start-up, innovation • possibility to open towards new markets : recreational, tourism • technical endowment started to be renewed • social impact: employment and income generation in the remote areas • ecological and traditional harvesting, e.g. using horses	• small-scattered ownership structure • the unpredictable change on rule of law (forest law mostly) • the restrictions when importing or exporting timber materials • the lack of sectoral-based policies in supporting of the forest sector development • increasing costs for raw materials (NFA announced a rise of 20% of prices for standing timber) • relatively high costs of transport, because of the infrastructure • difficulties to maintain a constant quality • yield table predictions, risk on the exact amount of timber bought and its quality • illegal felling • unfair competition by those firms evading tax, or other cost

Annex C: Organisations studying wood processing industries and main publications and information sources.

The most representative organisations studying wood processing industries are presented in Table 7.

Table 7. Organisations studying or providing information on wood processing industries

Institute / organisations	Type of information	Remarks
INS (National Institute for Statistics)	Romanian statistical yearbook	Statistics, internet available, on forestry and timber processing industries
ICAS (National Institute for forest research and forest management planning)	Studies on forestry and wood processing industry	Department on forest economics
INL (National Institute of Wood)	Studies on wood characteristics, wood processing technologies and on timber market	Department on timber market
Private association providing information on firms with activities on forest sector	ASFOR (Romanian Association of Timber Industries); APRM (Romanian Association of Furniture Producers); APSLR (Romanian Association of Manufacturers of Panels); ROMPAP (Pulp and Paper Industry Association); UGIR;	
Other public institution providing occasionally studies on wood processing industry	Institute of industry economics; Ministry of industry and resources; Center of research on economics; Center of information and documentation on economy; Romanian Academy for Economics Sciences; Universities	

For most representative research and publications see Table 8.

Table 8. Publications regarding the wood processing industries in Romania

Author	Year	Title	Remarks
Nichiforel, L., Bouriaud, L.	2004	Factori perturbatori ai pieței lemnului, din perspectiva agentului economic şi al gestionarului pădurilor publice (Disturbing factors on timber market, a forest manager's perspective)	Study based on interviews with economic agents and representatives from National Forest Administration to identify factors with negative influence on timber market and sustainable forest management
IRIS, University of Maryland, and IGCC, University of California	2003	World Bank project "Governance in the Romanian forestry sector – an overview of institutional, legislative and enforcement effectiveness"	Unpublished study, with an analyse on timber auction system
National Institute for Statistics	2003	Ancheta statistica privind volumul de lemn exploatat de catre agentii economici atestati (Enquiry on volume harvested by contractors)	Information on timber volume harvested by contractors
Nicolescu O, Plumb I, Pricop M, Verboncu I	2003	Abordari moderne in managementul si economia organizatiei (Modern approaches of organization' management and economics)	Case study on timber processing and furnitures
Năstase, C.	2002	Strategii de restructurare în industria lemnului în Bucovina (Reform strategies in timber industry in Bucovina)	
Nichiforel, L. Horodnic, S.	2002	Considerații cu privire la evoluția cererii şi ofertei de produse lemnoase la nivelul județului Suceava	Case study on demand and supply in wood processing industry
Stanciu, C.	2001	Managementul calitatii in industria lemnului (Management of quality in wood	Analyze of wood chain: forest resource – harvesting – primary

		processing industries)	processing – industry of furniture; Main aspects of managing quality improvement in furniture industry
Centrul de informare si documentare economica	2000	Probleme economice – Eficienta utilizarii resurselor naturale in industrie (The efficiency of industrial utilization of natural resources)	Chapter on efficient utilization of forest resource
Centrul de informare si documentare economica	2000	Probleme economice – Evaluarea gradului de aliniere a Romaniei la aquis-ul comunitar privitor la politica industriala (The level of implementing the acquis communautaire on industrial policy in Romania)	Chapter on the development of small and medium size enterprises
Dragoi, S.	2000	Timber Pricing System in Romanian Market Economy	
Dragoi, S.	1999	Particularitatile costului de oportunitate in silvicultura (Opportunity costs in forestry)	Timber pricing
Dragoi, S.	1998	Metode alternative de estimare a pretului de pornire la licitatiile de masa lemnoasa	Timber pricing
Năstase, C.	1998	Silvicultura românească în perspectiva integrării țării noastre în Uniunea Europeană (Romanian forestry in the perspective of accession to EU)	
Dragoi M	1997	Decision Support System for Timber Bidding	
Harvard Institute for International Development D	1996	Licitarea masei lemnoase în Suceava: rezultatele preliminarii ale unui studiu efectuat pentru Romsilva şi MAPPM	Analyze of auction in Suceava county
Milescu,I., Marocico, V	1995	Considerațiuni privind structura prețului de cost al lemnului pe picior în condițiile economiei de piață (The structure of timber price)	Timber pricing
ICAS	1993	Concepte şi metode de evaluare a prețului lemnului pe picior în condițiile economiei de piață	Timber pricing

Sources of information

National Institute for Statistics (Institutul National de Statistica): http://www.insse.ro/
Forestry&Fordaq, http://www.forestry.ro

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Dumitru, M, Diminescu, D., Lazea, V., 2004. Dezvoltarea rurala si reforma agriculturii romanesti. Working Paper, Romanian Centre for Economic Policies, Bucharest, http://www.cerope.ro/

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Saphores, J-D., Vincent, J.R., Marochko, V., Zinnes, C., Bouriaud, L., and Abrudan, I., 2003. Collusion in Romanian timber auctions: background and initial econometric results. Working paper for the FAO, Draft November 26, 32 p.

Tobescu, O., http://www.forestry.ro. Regulile jocului (Rules of the game). Editorial, 12.08.2003

UGIR (Uniunea Generala a Industriasilor din Romania –1903), http://www.ugir1903.ro

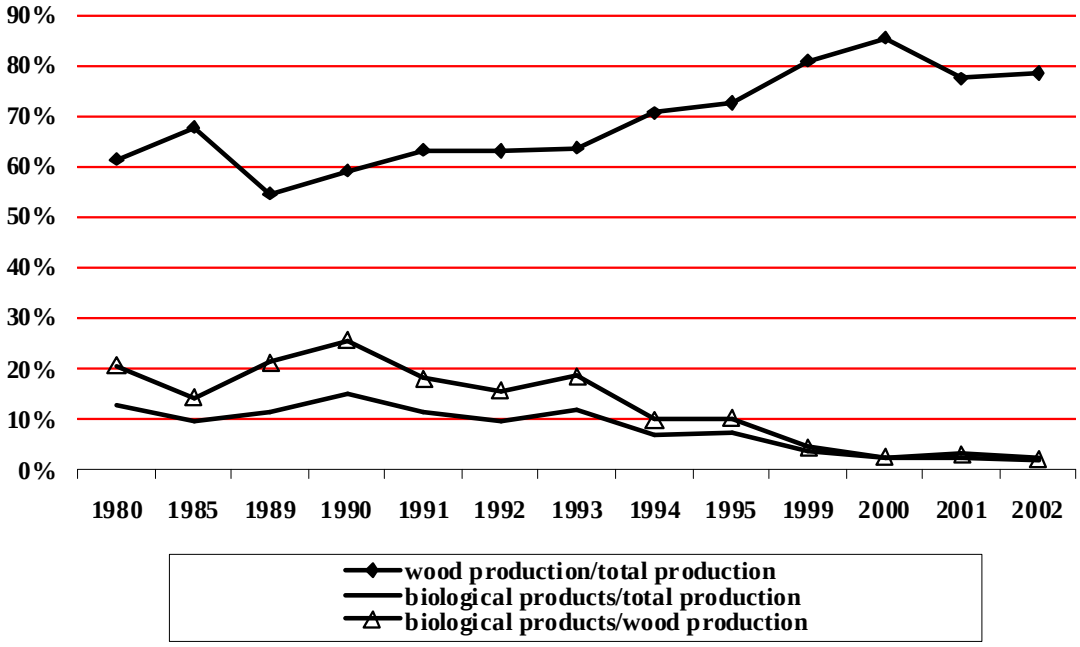
National Agency for Small and Medium Size Enterprises and for Cooperation, http://www.animmc.ro/

4. Non-wood forest products and services

4.1. State of the art and historical development

The non-wood production and services in the country, historically important for the livelihood, was emphasised especially during the latest two decades of the communist period. At that time, the national plans established production levels to be reached on picking berries and mushrooms, gathering medicinal plants, making traditional woodcrafts, fishing, gathering resins, capturing live animals for trade, etc. Forests were subject of grazing, and eligible forest administration units had to deliver a certain number of animals for meat production. Since the beginning of the 90's the production of so called "accessories forest products" is decreasing.

The data series (Figure 8) covering 22 year time horizon shows a decline of the biological products (berries, edible mushrooms, Christmas trees, medicinal plants) and an ascending trend line for the wood production/total forest production ratio.



Source: Forest Research and Management Planning, 2003

Figure 8. Supplied and marketed ratio of wood, biological products and total forest production

Biological products comprise berries, edible mushrooms, Christmas trees, medicinal plants. Their share in the total value of NWFP remained relatively constant during the period 1999-2002, e.g. around 35 to 40%. Hunting activities include venison, furs, game, pheasants, antlers, and leases for the hunting areas, taxes and permits/allowances for hunting. They represent around 20% of the value obtained trough NWFP. Wicker is mainly based on *Salix* species and represented 20% in 1999 and only 10% in 2002. Fish-breeding products include trout, both in the rivers and ponds, roe, spawn, taxes, leases, fishing allowances, and contributed with 8 (1999) to 15 (2002) percents in the value of NWFP. Unlike wicker and biological products which manifested a slightly decreasing trend, the value of seedlings produced and marketed has tripled between

1999 and 2002. The evolution of NWFP supply over the last decade is presented in Table 9 and 10.

Table 9. Domestic market size

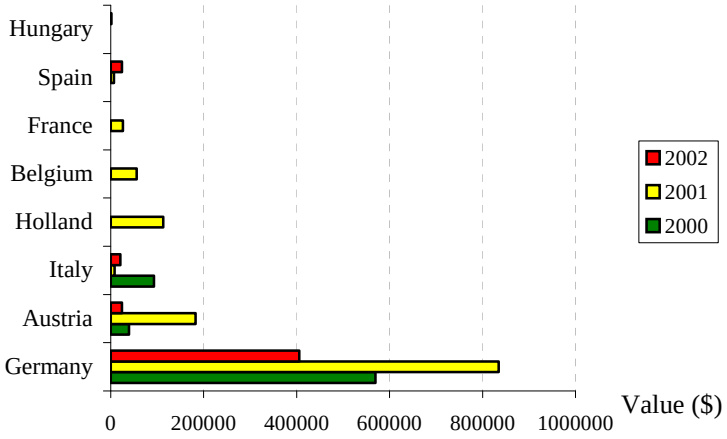
Product	Unit	1993	1994	1995	1996	1997	1998	1999
Forest Seeds	tonnes	307	130	130	356	69	787	47
Berries	tonnes	4959	1773	4217	3034	2797	1889	1757
Edible mushrooms	tonnes	91	145	257	162	1708	486	739
Medicinal plants	tonnes	1012	736	744	590	632	361	305
Drinks	hl	7823	2732	1157	1319	714	1335	152
Venison	tonnes	8	142	251	76	125	174	227
Pheasant	thousand	65	30	40	40	55	45	65
Fish (trout)	tonnes	344	417	504	390	454	565	614
Bee honey	tonnes	210	115	89	56	57	137	108

Table 10. Export market size

Product	MU	1993	1994	1995	1996	1997	1998	1999
Forest Seeds	tonnes	-	-	-	-	-	-	-
Berries	tonnes	7071	5258	4951	4293	5578	4661	5802
Edible mushrooms	tonnes	381	934	1696	1711	394	243	186
Medicinal plants	tonnes	-	-	-	-	-	-	-
Drinks	hl	-	-	-	-	-	-	-
Venison	tonnes	454	187	164	189	152	110	-
Pheasant	thou pcs	177	224	184	137	105	130	77
Fish (trout)	tonnes	-	-	-	-	-	-	-
Bee honey	tonnes	-	-	59	100	79	-	-

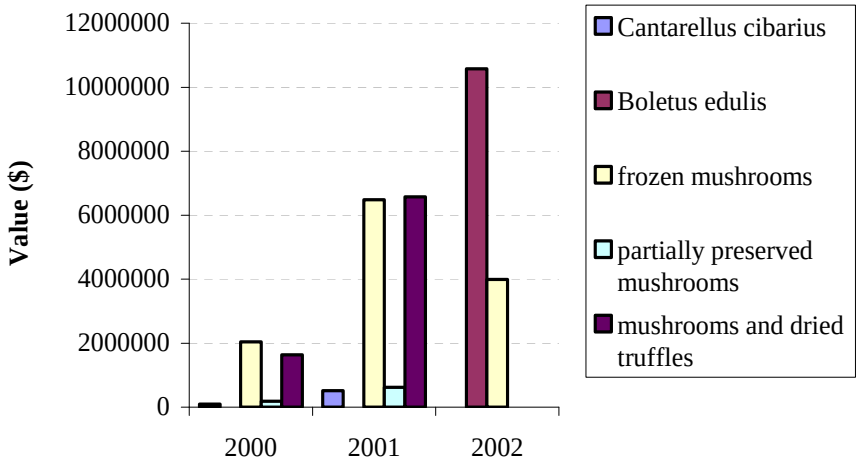
From 2000 the supply of dog rose fruit and of bilberry has increased while the blackberry supply has dramatically decreased. But a complete picture cannot ignore the fact that the actual harvest of *Rosa canina* fruits hardly equals the quantity (2,373 tonnes) collected in 1985, which represent the lowest value of the time series considered. The huge variations in the supply are due to the both natural resource growth and the external market opportunities.

The main export country for bilberry (Figure 9) is Germany as well as for the red bilberry but unfortunately this market is declining. Regarding the export of the edible mushrooms, Italy (Figure 10) is definitely the ruling export country, the next exporting market for edible boletus being also Germany. New investments were made in 2003-2004 by the National Forest Administration for the better conservation of wild berries (industrial installation for freezing). One may expect that in these conditions the markets would be more stables, due to the effect of more constant quality, but also to the possibility to store unsold production.



Source: Romanian Foreign Trade Centre, 2002

Figure 9. Exports of blueberries



Source: Romanian Foreign Trade Centre, 2002

Figure 10. Exports of mushrooms in Italy

NWFP&S definition and classification

The main product groups consist of edible mushrooms, medicinal and aromatic plants, forest fruits, forest seed and seedlings, hunting and game, pheasant and fish, services without market and services with market.

Edible forest mushrooms. The production (harvested) of three most looked-for mushrooms accounts for almost 9000 tonnes per year (Table 11).

Table 11. The average annual crop for edible forest mushrooms

Species	Tonnes/year
Armillaria mellea - honey agaric	1615
Cantharellus cibarius - chanterelle	1495
Boletus sp. - edible boletus	4520
Other sp.	340

Medicinal and aromatic plants (Table 12). About 150 species of medicinal plants are commonly harvested. In 1990 Romania ranked as the fifth country in the world for medicinal and aromatic plants production, exporting in more than 20 countries.

Table 12. The average annual crop for medicinal and aromatic plants

Species	Part of plant harvested	Tonnes/year
Rosa canina sp	Fruit	530
Crataegus monogyna	Flores and folium	22.4
Crataegus monogyna	Fructus	172
Sambucus nigra	Flores	51.1
Tilia sp	Flores	50
Hypericum perphoratum	Herba	70
Urtica dioica	Herba	50
Vaccinium sp	Flores	20
Betula pendula	Folium	30
Pinus nigra	Turiones	60
Abies alba+Picea abies	Foliage	60
Frangula alnus	Cortex	10

Table 13. The average annual crop for wild berries

Species	tonnes/year	kg/ha	kg/shrub or tree
Vaccinium myrtillus - bilberry	1095	22-350	
Rubus idaeus - raspberry	3090	70-200	
Rubus fruticosus - blackberry	2590	100-250	
Rosa canina - dog rose fruit	4030		1-4
Prunus spinosa	2030		2-4
Hyppophae rhamnoides - sallow thorn fruit	640		3-4
Crataegus monogyna - common hawthorn fruit	595		3-5
Other sp including:	1150		
Prunus padus			3-6
Prunus cerasifera		15-25	
Malus sylvestris			20-30
Prunus avium			20-30
Fragaria vesca		15-25	

Forest seeds and seedlings. Main species exported are: *Abies alba* Mill - fir tree, *Larix decidua* - larch; *Picea abies* (L.) Karst - spruce; *Alnus glutinosa* (L.) Gaertn - alder, *Carpinus betulus* l. - hornbeam; *Castanea sativa* Mill - chestnut tree, *Cornus mas* L.- cornel tree; *Cornus sanguinea* L. - red dogwood; *Crataegus monogyna* Jack -common hawthorn; *Eleagnus angustifolia* L. – oleaster. In 1998 the total area covered with seed stands was 56,823 ha and there were 164 seed orchards established on 828.1 ha.

Hunting and game. The main game species that can be hunted are: red deer, fallow-deer, roe-buck, chamois, bear, wild boar, wolf, grouse, rabbits, pheasants, quails, geese, ducks. The 10 most valuable brown bear furs and 5 biggest skulls worldwide were harvested in Romania. The utilisation of the hunting areas is shared between the national hunting association (61%), the private (particulars) hunting associations (6%), the National Forest Administration (31%) and the educational and research organisations (2%). Pheasant is important both for shooting and meat. It is also used for repopulating hunting funds.

Fish. The main fish species are: the brown trout (*Salmo trutta fario*) which lives in mountain rivers with high oxygen concentration and low temperature range. The lake trout (*Salmo trutta lacustris*) lives in mountain lakes and can weigh up to 10-12 kg. The rainbow trout (*Salmo gairdnery*) lives in mountain rivers and lakes. The brook trout (*Salvelinus fontinalis*) can be found in cold and well oxygenated waters. The Srayling (*Thymalus thymalus*) is living in the inferior sector of mountain rivers, in deep and cool water. *Hucho hucho* is the largest representative of the family, an endemic species of the Danube. Being so scarce fishing for it is allowed with the approval of the Ministry of Waters, Forests and Environmental Protection.

Service without market. The distribution of the Romanian forest according to the functions to be fulfilled is 53.3% protection forests and 46.7% production and protection forests. Most of the protective forests are managed to enhance the protection of the soils against erosion and the protection of the watersheds (Figure 11).

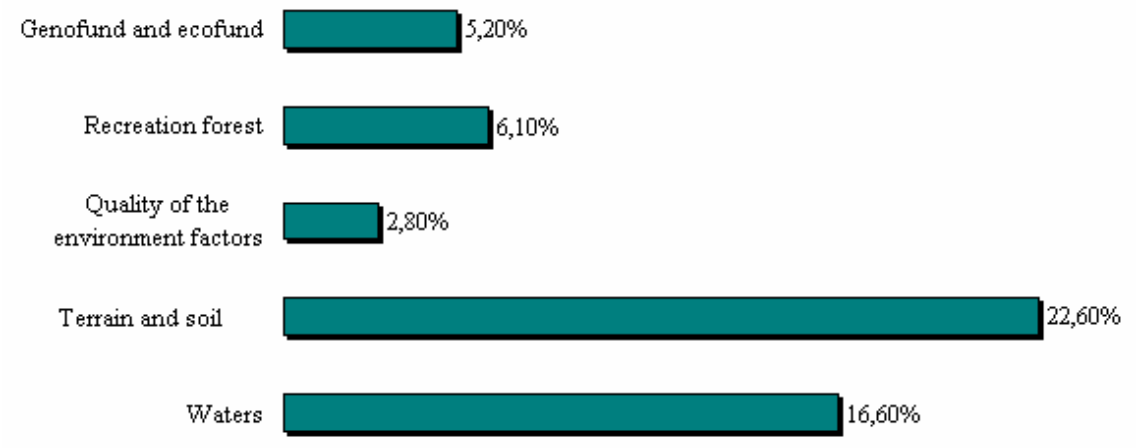


Figure 11. Repartition of Romanian forest by type of protective function

Service with market:

- The National Forest Administration and Prototype Carbon Fund managed by World Bank are carrying out a project on afforestation of the degraded agricultural lands. The object is 850,000 tones of CO_2 within 15 years. The ongoing project has started in 2002. The price for one tonne is 3.6 US$/t CO_2, paid at delivery. The annual sequestrated quantity is calculated and delivered to the external partner by the National Forest Administration.
- The Government Decision nr. 1105/2003 formally acknowledged on the NFA tasks the silvotourism and the outdoor activities. These activities always represented an important component of the NFA activities, but it is the first time that a legal framework was established to allow the NFA to provide recreational services. The framework was particularly required after the horses breeding has integrated to the NFA follow the dissolution of the former national agency for horse breeding. At this stage an objective financial analysis related to the horse breeding and horse tourism activities is deemed.
- The National Forest Administration concluded contracts and received income for administration/management of forests hold by communes, communities or private individuals. The concerned forest area is 677 thousand ha, mostly communal forests. There is not information available about the income realised.
- The right to pick up mushrooms on the forest managed by the NFA for commercial purposes is leased towards private contractors. The NFA receives 0.2-0.3 euro/kg harvested.

Those examples show a trend to diversify the forest managers' activities and sources of income. Although the NFA had already experience in some activities, e.g. external trading of the biological products, however most of the economic activities performed now may be considered as innovative.

Description of the "product chain" organisation

The quantities of berries supplied are limited in a higher extent by the physical capacity of the resource than by the market demand. The resource is less abundant since intensive forest harvesting operations replaced in the last two decades the large size clear cuttings. The supply of non-forest wild berries such *Rosa canina* are more constant than the supply for forest-specific berries (e.g. blueberries, raspberries).

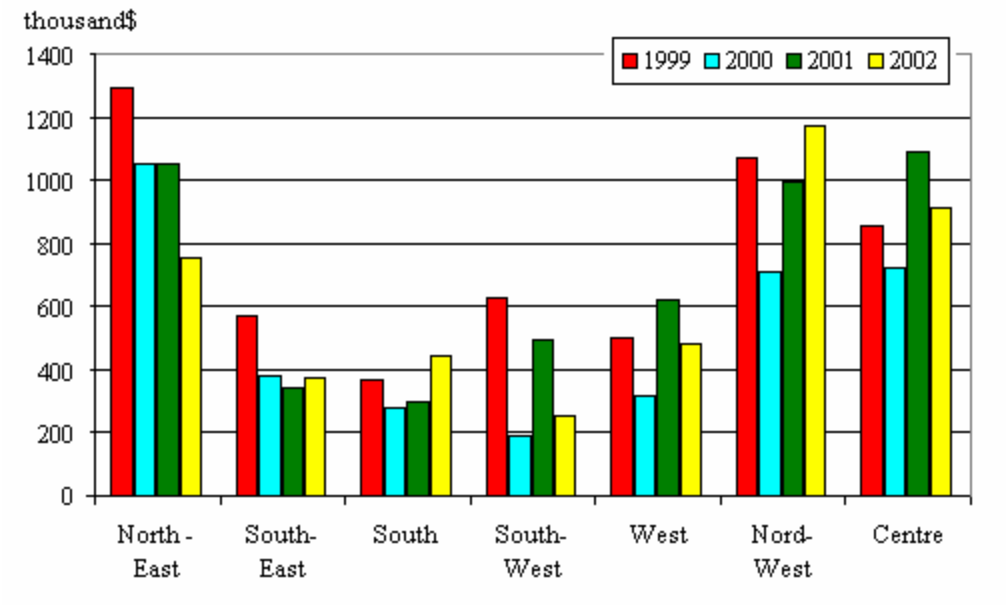
The berries are collected by the rural inhabitants and brought to the collecting centres belonging to the National Forest Administration. Usually, the collectors are paid on quantities harvested and there is any formal contract between them and the buyer (the NFA). Then the NFA will sell the berries (fresh, frozen, or refrigerated) trough the private firms specialised on external trade. These will make the transaction with the external partners on behalf of the NFA. Their role is that of as commissioners. Hunting services for foreign hunters are managed also trough commissioners firms.

Regarding the mushrooms gathering little is done by the NFA by the way of collecting centres, such the case if for wild berries. Mostly the right to gather mushrooms is accorded to private firms which paid a tax on quantity harvested. The firms collect and sell the mushrooms only on the external market, the main importer being Italy.

A product sold by the NFA directly on the internal market (via the supermarket chain Metro) is the trout. The recent investments made by the NFA in the biological forest products processing leaded to a more constant supply, but also to a higher possibility of negotiating prices, e.g. if the price offered is not convenient, the NFA still can store the production without the risk of lose it.

NWFP&S relevance in rural economies

The forest non-wood yield value has been accounted for seven development regions as stated in the Romanian Statistical Yearbook, i.e. North East, Southeast, South, Southwest, West, Northwest, Centre. As shown in the figure bellow it is only the Northwest region along with the South and South East ones that have recorded a significant increase in the production level while in the Northeast region this has dropped visibly (Figure 12). There is a link between the sharp increase of timber production value in this region and the decrease of the NWFP value, explained by the fact that the main supplier of NWFP is the National Forest Administration, and that the NFA has concentrated its effort on copping with the effects of storm damages from 2001 rather than concluding new contracts for NWFP.



Source: Forest Research and Management Planning, 2003

Figure 12. Contribution of forest non-wood yield to regional development

There is lack of information on how much the NWFPS could contribute to the rural economy. One may identify three main socially customised approaches of using non wood forest products such mushrooms, berries or medicinal plants:

- the berries or other biological products are gathered by the private persons and sold on the farmers' market. The other possibility is to sell them to the specialised enterprises which act as buyers for biological products. The National Forest Administration is used to collect berries with the help of rural inhabitants. The gathering of berries is economically and socially important in this context because most of people collecting them belong to the poorest categories of rural population (unemployed, gypsy minorities);
- the berries and mushrooms are collected for completing the inhabitants' winter food provisions. Particularly the honey agarics, the chanterelle and the edible boletus are used for that purposes. The economic benefit is a substitution effect. The winter time food provisions are important in the rural Romanian context, because the food supply in the shops existing in the rural area is not very diversified and rarely contain fresh vegetables and fruits;
- finally, the gathering may have not economic value, but a recreational one only, especially for the urban population.

The way of gathering wild berries and mushrooms creates potential for SMEs development. The production chain for berries and mushrooms (previous sub-section) illustrate that there is room for entrepreneurship as commissionaire firm for external trade or as firm for collect and trade berries and mushrooms as far as the supply is by far inferior to the demand.

Property rights and general regulatory framework

There are general laws regulating forest products in Romania, according to the provisions of the following laws in force:

- The Forest Code (Law 26/26 Apr. 1996)
- Law on hunting fund and protection of game (Law 103/23 from Sept. 1996) that regulates administration and management of Romania's hunting fund, the hunting activities and the game protection
- Law on environment protection (Law 137/23 Dec. 1995)
- The Order of Ministry of Waters, Forests and Environment Protection No 647/06-07-2001 on authorising harvesting, capture and purchase plants and animals for domestic and external trade, modified by the Order n. 117/05-05-2003
- Law of Waters (Law No 107/25 Sept. 1996)
- Government Decision No 1105/2003 – regarding the reorganisation of NFA, that gives the legal framework for silvoturism.

The rule of the public access on all national forests is not consecrated by law, otherwise it seems to be a largely acknowledged social custom. For instance, kind of advertising such "private property, do not enter" or "trespassing prohibited" did not appear yet on forestland.

Special rules exist when collecting berries, mushrooms or other biological forest products for commercial purposes. In this case, the collector is obliged to be authorised by the local agency for the environmental protection. Secondly, the collector can not gather biological forest products from the private lands without the owners' acceptance, expressed trough a contact, convention or any kind of agreement.

The Romanian Forest Code states that the beneficiaries of the protective forest services have to pay for those materialised in economic income. The valuation of forest services is still targeted, as research has been carried out and some methods have been developed. However, the only forest service subject to payment is the practice of the hunting activities, from which the landowner may receive some economic benefits.

Annex D: Organisations studying non wood forest products and services and main publications and information sources.

The research organisations are the same that mentioned at the Annex C, otherwise there are not many research done in the socio-economic aspects of the NWFPS production or evaluation.

4.2. Case studies of successful marketing strategies

Case study 1: CO2 sequestration

NWFP&S definition, area of production, harvesting level, technical characteristics of production

Carbon sequestration is the capture, from power plants and other facilities, and storage of carbon dioxide (CO_2) and other greenhouse gases that would otherwise be emitted to the atmosphere. Forest lands offer significant opportunities including the below-ground carbon and the long-term management and utilisation of standing stocks, ground cover, and litter. The targeted activity is afforestation of degraded agricultural lands and establishment of a basis for long term sustainable management. The afforestation of the degraded lands is a strategic objective of the sustainable management of the national forest resources. It is estimated that an amount of 1-3 t CO_2/year/ha will be sequestrated depending on the site conditions and biological characteristics of the species to be used.
A four year afforestation project (2002-2005) is running, located in seven Romanian counties in South-Western and East-Southeaster part of the country. The designed sites are abandoned and degraded agricultural lands, improper for agricultural use. The works comprise site/soil preparation, seedling plantation and maintenance/tending operations for new plantations until the stage of canopy closure (up to five years after planting), in accordance with the rules of the forest vegetation establishment and of the ecological restoration. The most appropriate species to use are those adaptable to floodplain conditions such as indigenous poplars (*Populus alba* and *Populus nigra)* and black locust *(Robinia pseudoaccacia*), along with *Quercus cerris* and *Quercus pedunculiflora* where site conditions are favourable, preferably together with some accompanying native tree and shrub species.

Description of the "product chain" organisation

- number of companies involved and management characteristics

  The National Forest Administration (NFA) has signed the contract with an external partner and seven of its territorial branches (forest directorates) are involved in carrying out the project;

- the role and share of SMEs in the the product chain

  The total area subject to afforestation is 6033 ha. The National Forest Administration provides seedlings from its own forest nurseries and technical advice trough its field staff. Local labour is involved in manual work whilst for the mechanised operations some firms are subcontracted. After establishment, the forests are periodically surveyed and monitored for the identification /control of pests/damages. They are subject of specific management in the context of local sustainable development, focusing on benefits for local communities (fuel wood from tending operations, recreation, etc., but also protective effects for soil and climate, particularly important in the South part of Romania);

- trade activities (import and export flows and development patterns)

  The trade between the National Forest Administration and the Prototype Carbon Fund administered by the World Bank consists of transferring 855,000 tonnes of CO_2 at a price of 3.60 US$/t CO_2 (or 13.2 US$/t C), the total value of the contract being 3,077,946 US$. The value of the carbon accumulation in the year 2002 and the first half of the year 2003 was 13,400.75 US$ (3722.43 t CO_2 x 3.6 US$/t CO_2). The estimate of total project cost is US$ 10,340,000. National Forest Administration covers the costs of afforestation from its own sources and from the budgetary allocation from Ministry of Agriculture, Forests and Rural Development.

- policy framework

  The actors involved are National Forest Administration and the Ministry of Agriculture, Forests and Rural Development. The State Domain Agency was involved as well, by the transfer of 5,028 ha to the NFA starting with the second year.

  Research contribution was important in this project. Previous studies have documented the quantification of stocks and fuelled the financial analyses (see the references). The focus was on comparison of CO_2 Fix Model results with the field data.

- profit appropriation by the landowner/contractor/manufacturer/ dealer/seller

  According to the financial plan, the Romanian government (NFA and Ministry of Agriculture, Forests and Rural Development) has made the necessary financial commitment to cover investment cost the schedule is as follows:

Table 14. Annual investment

Year	2003	2004	2005	2006	2007	2008	2009	Total
Cost (thousand US$ per year)	3,110	3,460	3,071	510	114	71	3	10,340

- contractual agreements between landowners and resource managers; networking and joint ventures among/between non-wood processing and service industries

  All the areas included in the project are in state ownership. Initially 1700 ha administrated by National Forest Administration were included in the project.

Starting with the second year, additional 5028 ha have been transferred from the State Domain Agency in the administration of the NFA.

- characteristics of technological or organisational innovation behaviour in non-wood production, processing and service industries

  This technological innovation is the result of innovative and open management strategies on NFA headquarters in the period 2001 – 2003.

- "territorial" marketing (i.e.: the integration of the NWFP&S to other services and products offered by the local community)

  In addition to the timber and carbon revenues, the project will contribute significantly to non-timber forest products in terms of soil stabilisation and potential forest fruits and honey production. Black locust is a prolific flowering species and highly prized for honey production. The estimated yields are 20-25 kg/ha after age 6. The beekeepers are not charged for placing their hives under the crops.

Lessons learns/driving forces/factors affecting competitiveness (SWOT analysis)

SWOT analysis

Strengths	**Weaknesses**
• ability to approach innovative instruments to solve global environment problems such as climate change	• limited capacity to negotiate international contracts due to the lack of experience
Opportunities	**Threats**
• imminent market-based mechanism concerning carbon emissions • improvement of land use • social impact: employment and income generation in the regional areas • biodiversity enhancement	• risks associated with the project: grazing, drought, fire/diseases • model predictions, yield table predictions • site productivity class • illegal felling • financial and technical capacity.

Case study 2: Hunting

NWFP&S definition, area of production, harvesting level, technical characteristics of production

Romania is one of few countries in Europe which still hold important resources for hunting activities on wildlife from aquatic or forest ecosystems. It is known that before 1990, the game management was done to supply international hunting trophies. That led to the fact that the country obtained trophies on red deer, bear, roe deer, wild boar, brown bear, etc. In other words, the quality of Romanian brand has an international recognition.

The Suceava County is located in the North-East. It is the second largest in the country, with 8,553.5 km^2, from which half is covered by forests. Natural large forests tracks and difficult to access still represent a last refuge for brown bar, wolfs and lynx.

Suceava county has the largest area for game management amongst the Romanian counties, that means 876,130 ha. This area is shared in 71 game management units (GMU), composed by 449,647 ha forests, 378,840 ha agricultural land, grassland and mountain pastures, and 945 ha water surface. The size of one game management unit varies between 5,000 ha in the lowland area to 10,000 ha in the mountains. The number of some wild animal of hunting interest is given in the Table 15 for the latest five years.

Table 15. Evaluation of game units

Game species	2000	2001	2002	2003	2004
Cervus elaphus - the red deer	4165	4270	4369	4026	4074
Capreolus capreolus - the roe deer	4880	4905	5155	4850	4870
Sus scrofa attila - the wild boar	2070	2195	2447	2359	2335
Ursus arctos - the brown bear	251	267	280	265	278
Tetrao urogallus - the capercaillie	1103	1152	1249	1212	1287

Source: I.T.R.S.C. Suceava

Description of the "product chain" organisation

1. Number of companies involved and management characteristics. The game management units are in the administration of different entities, as following:

- 73% of the GMU are in the management of hunting associations;
- 25% of the GMU are managed by the local branch of the national forest administration (Forest Directorate Suceava);
- 2% of the GMU are managed by the educational institutions on forestry.

The management of game population is based on the principle of maintaining the optimal number of animals, established according to the characteristics of the GMU. When the population overreaches the optimum level, a certain number of animals will be extracted. Hunting can be practiced by the manager of the GMU or by the others (hunters from legally recognised associations, forest officers from national forest administration) based on a permit. Hunting is possible for foreign hunters as well, provided that they have a hunting licence in their origin country and they are allowed by the manager of the GMU.

In the latest case, the product chain may involve one or several intermediary firms between the manager of the GMU and the client. There is not the case for county Suceava.

2. The role and share of SMEs in the product chain

Amongst 71 GMU in Suceava County, four only are managed by private persons. They are real entrepreneurs, while consider that they have to manage a natural stock which is the game. However, their utility function seems do not be the profit, but the practice of the recreational activities and perhaps the preference for an exclusive right on the game management.

3. Trade activities (import and export flows and development patterns)

From the viewpoint of income to be obtained, is by far more interesting to attract foreign hunters, because the perceived prices are higher. However, the participation of foreign hunters is reduced, except for the brown bear and the capercaille (Table 16).

Table 16. Game units extracted by Romanian (R) and foreign (F) hunters, in Suceava Forest Directorate

Game species	2000		2001		2002		2003	
	R	F	R	F	R	F	R	F
Cervus elaphus - red deer- female	84	0	89	0	110	0	133	0
Cervus elaphus - red deer-male	36	9	42	6	41	19	60	11
Capreolus capreolus - roe deer-female	53	0	77	0	89	0	107	0
Capreolus capreolus - roe deer-male	35	0	43	9	53	7	68	5
Sus scrofa attila - wild boar	240	n.a	304	n.a	361	n.a.	365	n.a.
Ursus arctos - brown bear	14	0	9	0	12	10	5	16
Tetrao urogallus - capercaillie	49	0	21	19	33	22	34	27

Source: I.T.R.S.C. Suceava

4. Policy framework. The institutions involved in the sector are the Ministry for Agriculture, Forests and Rural Development, the Forest Inspectorates, the NFA, and the organisations with game management activities. Ecologist non governmental organisations play an important role too in the political process.

The main regulations that directly influence the NWFP&S production and harvesting are in the Law no. 103/1996 on the hunting grounds and game protection. According to this law, the manager of the GMU has the right to obtain income from the game acquired according to the rules of hunting and on the limits of allowed quota. The owner of the land on which the GMU is established has in right to obtain income from the practice of hunting activities. When the ownership size included in a GMU is over 100 ha, the landowner would receive a direct payment from the hunting association. In the case when the land in property is under this size, the landowner would received a payment representing 25% of the price that the manager of the GMU paid for having the right to manage the unit. This amount is distributed by the local public administration.
The main policy instruments available are regulatory. Nothing exists to stimulate the entrepreneurship in this particular field. However, make the hunting more attractive in the Romanian forests is part of the internal policies of the National Forest Administration, and it is concretised in the utilisation of some management and marketing strategies. The taxation remains high in the case of foreign hunters.

5. Role of research, education, and training extension services in NWFP&S development. The existing research is targeted to a poor spectrum of aspects, mainly of technique/technological nature. The sustainability aspects are emphasised when studying the relationship between the game management and the forest management. Some researches warn about the potential impact of “hunting for money” on the sustainability of the forest ecosystem and on the quality of the game. However, despite of quantities of the anecdotic evidences reported by the newspaper, few research articles exist on that topic. There is any research on economics of hunting activities. Mainly, the information sources on economic importance of the game management are represented by the NFA organisation internal accounting and reporting.

The curricula of forest engineers and forest guards provide them with high level educational background on game management. There is also a special “hunting school” in Brasov.

6. Profit appropriation by the landowner/contractor/manufacturer/dealer/seller
There is no information at the national level on the profit realised by the managers of GMU, except the fact that, according to the National Statistical Accounts, the national trophies brought in the year 2001 an income of 14 million euro. The income obtained by the managers of the GMU located in the Suceava County (Table 17) was calculated based on average prices obtained by the selling of the trophies and of the meat (Table 18).

The taxes practiced are on the limits of medium prices in Eastern Europe, with clearly higher prices obtained in the case of high value trophies. For Romanian hunters, the prices to be paid are significantly lower, e.g. 120 to 2000 euro for red deer and 600 to 4000 for brown bear. The costs of managing a GMU are high. One way to cover them and make substantial profit is to have the foreign hunters as clients.

Table 17. Approximation of annual income from hunting activities, in Suceava Forest Directorates

Incomes - euro	2000-2001		2001-2002		2002-2003		2003-2004		Total
	R	F	R	F	R	F	R	F	
Cervus elaphus - female	13440	0	14240	0	17600	0	21280	0	66560
Cervus elaphus - male	14760	38340	17220	25560	16810	80940	24600	46860	265090
Capreolus capreolus -female	1060	0	1540	0	1780	0	2140	0	6520
Capreolus capreolus -male	2800	0	3440	10800	4240	8400	5440	6000	41120
Sus scrofa attila	36000		45600		54150		54750		190500
Ursus arctos	14000	0	9000	0	12000	60000	5000	96000	196000
Tetrao urogallus	4900	0	2100	19000	3300	22000	3400	27000	81700
Total	125300		148500		281220		292470		847490

Note: R – incomes from Romanian hunters, F – incomes from foreign hunters

Table 18. Charges for foreign hunters

Species	Trophy euro/ unit		Damaged charges euro/ unit		Failed shot charges euro/shot		Hunting organisation charges
	Male	female	male	female	male	female	euro/day/hunter
Cervus elaphus	550-8800	150	800	75	150	30	20
Dama dama	250-550	25	200	15	25	5	20
Capreolus capreolus	225-2900	15	200	10	25	5	20
Rupicapra rupicapra	1100-2800		1000		125		20
Sus scrofa attila	250-750	200-300	100	100	50	500	150
Ursus arctos	5000-7000		1500		275		150-275
Lynx lynx	800-1000		200		50		15
Canis lupus	400-500		100		50		15
Tetrao urogallus	1000		350		100		20

Source: synthesis from Ministerial Order, No 117/19.04.2001

The Forest Directorate Suceava offers other services associated or not to the hunting, e.g. accommodation in the 13 hunting cottages that the Forest Directorate owns, translator, transportation, equipment renting. For the foreign hunters, the charges for accommodation range between 60 euro to 40 euro per day and per person, according to the comfort level. For silvoturism and ecoturism or other activities besides the hunting, the prices charged are 18 euro per day and per person.

Taking pictures and make movies seem to be a new opportunity to further develop. Using a camera is free for the hunters paying their charges, but for other foreign clients the charges are 100 euro per day for pictures and 200 euro for making movies. The service comprises guidance from a forest specialist.

7. Contractual agreements between landowners and resource managers; networking and joint ventures among/between non-wood processing and service industries. Contract is reduced to the payment towards the private owner of the land, or towards the local administration. In fact, the resource managers (the managers of the GMU) have to pay both the State, for acquiring the hunting rights, and the land owners, as right to use the space of their properties. The price is fixed, and it's not related with the income on managing the game.

8. Characteristics of technological or organisational innovation behaviour in non-wood production, processing and service industries. According to the Government Decision nr. 1105/2003 the silvoturism and the outdoor activities represent a new task added to the NFA bylaw. Therefore, the innovation represented by this new "product" – silvoturism and outdoor activities, appeared after the legal framework was created. This evolution was triggered by the transfer of the horse breeding activity from the former state agency towards the NFA.

The latest years, the Forest Directorate Suceava modernised its 13 cottages, and started to build two new ones. These preparative are not without risk: the main option seems to be "the foreign hunters"; the possibility to realise income from domestic tourists or visitors are not enough explored; the lack of marketing and information hampers the meeting between the supply and the demand.

9. "territorial" marketing (i.e.: the integration of the NWFP&S to other services and products offered by the local community)
The hunting tourism is an opportunity to promote landscape and cultural values of the tourist zone of county Suceava. Usually, the hunters are supplied with services for visiting historical sites (Bucovina four centuries' old monasteries) and taking profit from being in a rural traditional area. In the GMU managed by the National Forest Administration the hunters received accommodation in the NFA own hunting cottages. Therefore, the silvotourism is promoted. In the other GMU the hunters receive accommodation in rural area (mainly farms). The agro-tourism is then promoted by the same way. But there is any co-ordination between the authorities in charge with rural development policies and the managers of GMA or State agencies involved in allocating the GMU.

Lessons learns/driving forces/factors affecting competitiveness (SWOT analysis)

Strengths	**Weaknesses**
• diversity of the game populations • the high quality of the trophies acknowledged by the international prizes obtained • "wilderness" of the hunting area, far from human settlements • high level standards accommodation	• quality of services • high bureaucracy, particularly for enter the country with a gun fire and for export the trophy • the risk of unsustainable management of stocks • weak marketing • no marketing from the private "producers", few marketing tentative by the national forest administration • a successful hunting (and then the client' satisfaction) is subject to hazard
Opportunities	**Threats**
• promote ecotourism, silvotourism, agrotourism • develop "picture hunters" • obtain finance to recompense ecological balanced management of wildlife • promote ecological image • develop "new markets", not only foreign hunters oriented, but based on smaller services, e.g. rent the hunting cottages in week-ends for the urban population, organise field trips, etc.	• development of international movement anti-hunting • unsustainable management of the game population by the hunting of the bests individuals (impoverishment of the population) • the decrease of the present natural habitats because of the chaotic harvest of private forests • corruption in its different forms, e.g. disguised practice of hunting with foreigners, invited as "observers" of hunting by Romanian friends, or voluntary misclassification of game captured (Detailed description on a NGO site, http://www.alpinet.org/main/liste/index_ro_id_11060.html).

4.3 Summary: Barriers to entrepreneurship and research needs

As a main supplier, National Forest Administration targets a sustainable supply of forest products attainable by a multipurpose management in which evaluation system is an important component. Evaluation of the NWFPS may contribute to:

- the better knowledge on the forestry part on the GDP and on the rural economy;
- improve the tax collecting from the direct beneficiary of the forest services;
- improve the tax system for forest land owners according to the impact of the ecological restrictions on forest management efficiency.

Investments in the protective forests should be substantiated by cost-benefit analysis to increase their recreational value. Valuation research studies in Romania should be given a special attention in the future. Developing a basic national data collection for setting up a management information system is needed.

Barriers to entrepreneurship on biological NWFP pertain to both the supply and demand sides. The drawbacks are summarised in the Figure 13. Regarding the barriers to entrepreneurship on hunting activities, there are several problems listed bellow:

- the private managers access few GMUs, that are not enough to avoid a marketing strategy on medium and long term. The NFA has better opportunities to satisfy clients preferences, and by that it hold a strong position on the market;
- due to the management costs, the only one profitable option is now the hunting with foreign clients. Yet, there are not feasibility studies on the real management options and costs;
- there should be entrepreneurship opportunities for the commissioners firms. Nevertheless, a search with Google engine leads to identify only 6 commissioner firms. Avoiding Internet for the purpose of commercial information to attract foreign customers is a weakness of the chain. Yet, it might be so also that the "service" chain is well established then it constitute by itself a barrier to new entrants. This hypothesis would require further investigation;
- the game is a moving resource. Therefore not negligible risk exists for free-rider behaviour in the border of contingent GMUs, e.g. they can hunt intensively, and for the regeneration of the stock they would attract individuals from the other GMU, by offering them food or salt.

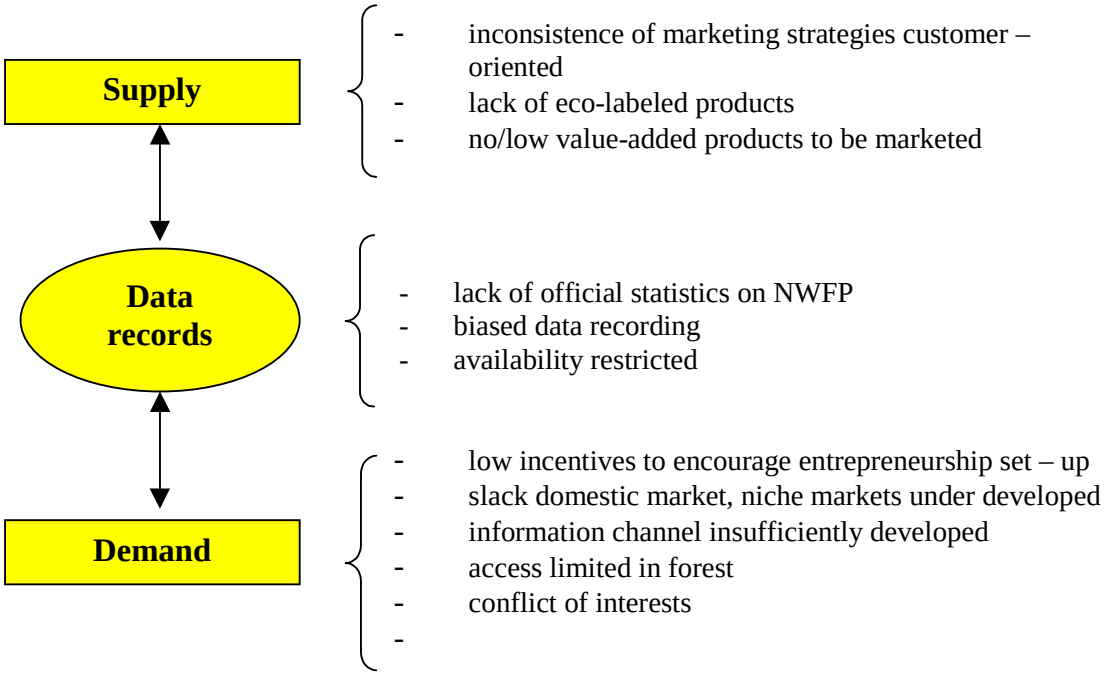


Figure 13. Barriers to entrepreneurship related to NWFP

In the field of Carbon sequestration, the main barrier to entrepreneurship is related with the scale of afforestation operations. In the given case study, an important organisation was able to negotiate a contract within the Prototype Carbon Fund. The same negotiation would not be possible for private enterprises or for private forest management structures, at the existing situation, unless the Government does not intervene with some guarantees or financial incentives.

The research needs consist of establishing appropriate indicators, to correct the significantly underestimates of the carbon stocks in above ground biomass and litter for the designed sites resulting from the model simulations as compared to the field measurements. This will improve the accuracy of estimation about certifiable emission reductions.

As in the case of the wood processing industries, the lack of the market information, and the lack of management and marketing strategies are the main impeding factors of enterprise development in NWFPS. The non wood forest products/services chain is even lesser developed than in the case of timber products and it is still dominated by the NFA. Therefore often good opportunities for the firm creation/development may exist in partnership with the NFA, or in developing innovation in those fields where the NFA has no competitive advantage because of its statute of public agency.

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5. Forests and ownership

5.1. State of the art and historical development

Romanian forest distribution as showed in Figure 14 is:

- 66% in the mountains (30% of country area)
- 24% in the hill (37% of country area)
- 10% in the plain (33% of country area)

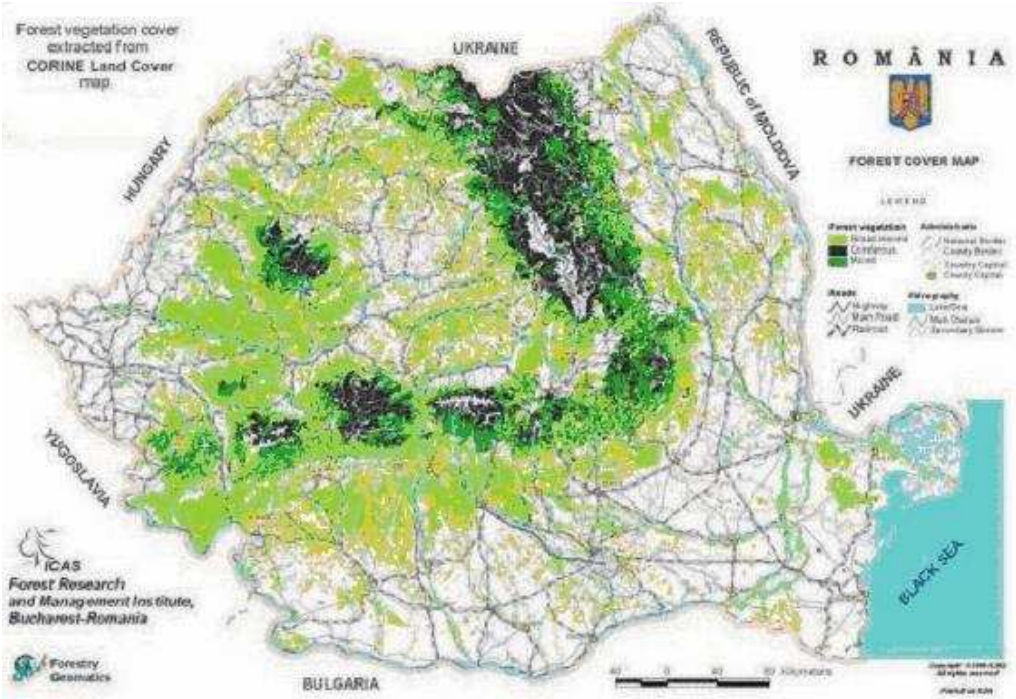

Figure 14. Forest cover map

In the last 100 years the forest resource in Romania was decreasing. Between the firs and the second global wars, the forest area decreased by more than one million ha. During the socialist period, despite of afforestation policy, the forest area did not increase, in particular because of systematically overreaching of annual allowable cut. Experts estimated at 400 thousand hectares the loss of forest area after the second war. Except the latest years, the harvesting was generally above the annual possibility of forests, which is situated between 12 and 14 million m^3 (Figure 15).

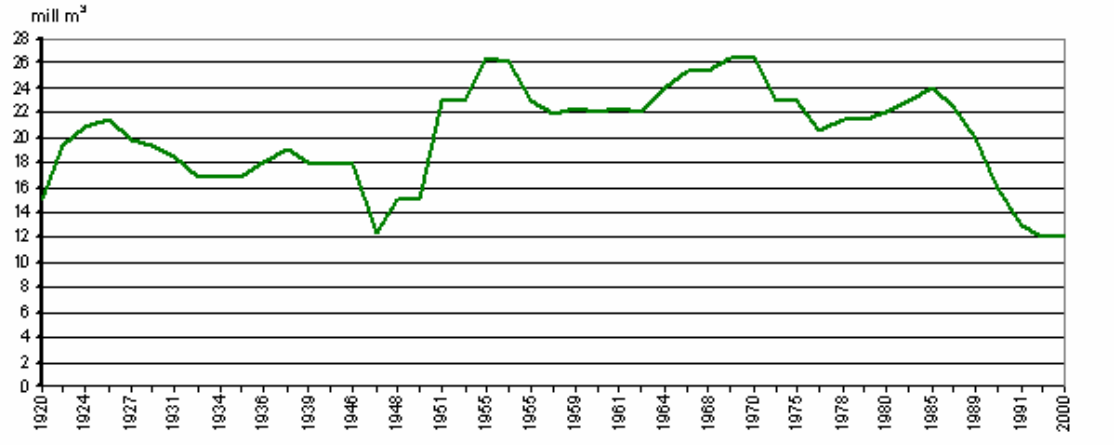

Figure 15. The historical evolution of harvested volumes

The repartition of forests on age classes (Figure 16) shows an unbalanced structure, with few forests in age of harvesting. That represents the effect of over-exploitation during the communist period.

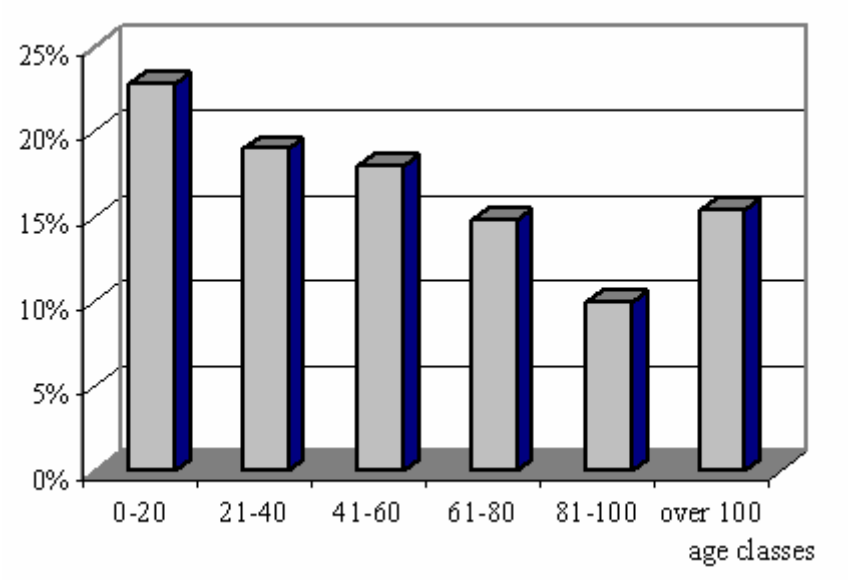

Figure 16. Repartition of forest by age classes

The management of the forest resource is based on the forest management plans (for public forests and private forests over 10 ha), and on simplified forest management plans for the small-scale forests. The State finances the costs of establishing the forest

management plans in private forests. The forest management plans are draw-up by the National Institute for Research and Forest Management Planning (ICAS) and by some private firms for a period of 10 years (with few exceptions). To enter in force, the forest management plans are check-out by the Forest Inspection, then they are approved by Order of the Ministry for forests.

5.2. Forest resources

The forests cover 26.7% of the total land area, which ranks Romania on 10th position among European countries. Forests are unequally distributed, the less forested area being the plain region situated at the country borders from South, East and West (Câmpia Bărăganului, Câmpia de Vest and Câmpia Moldovei – less than 4% forest cover).

Contradiction exists between pictures on forest area provided by the National Statistical Accounts sources and those provided by the National Forest Administration. In the former the forest area (forest and other forest vegetation land) decreased from 6685.4 thousand ha in 1990 to 6,457.3 thousand ha in 2000 (a reduction to 0.5% of forested area). The National Forest Administration mentioned about 10 to 20 thousand ha deforested (land use has been changed) in private forests this last decade. This deforestation occurred because of few means to support the regeneration of forests in private area, but also because of grazing activities. Indeed, one can observe the increasing of pastures area with around 180 thousand ha during the last ten years.

Area covered by forests decreased in parallel with the increase of other categories of land included in forest estate (Table 19).

Table 19. Forest land (end of year, in thousand hectares)

	1938	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Forest and other wooded land		**6366**	**6367**	**6367**	**6367**	**6366**	**6367**	**6377**
From which forest area	5955	**6240**	**6236**	**6227**	**6226**	**6223**	**6225**	**6238**
coniferous	1525	1890	1883	1868	1861	1856	1853	1858
beech	2060	1935	1939	1942	1943	1951	1956	1958
oak	1221	1131	1129	1127	1122	1120	1117	1120
various species	1149	1284	1285	1290	1300	1296	1299	1302
other lands		126	131	140	141	143	142	139

Source: National Forest Administration, www.rosilva.ro, National Statistical Accounts

The growing stock was calculated at the latest inventory (1985) at 1,341.4 million cubic meters, which means an average volume per hectare of 213 cubic meters. The mean annual increment is 5.06 m^3/ha/an, situating Romania on fourth rank in European countries, after Suisse, Austria, Czech Republic and Slovakia. The mean annual increment is 4.09 m^3/an/ha, if including the first age class, and 5.27 m^3/an/ha if not included.

The forest contribution to the GDP (sylviculture, logging and primary wood processing industries) accounts constantly the latest ten years for 2.4% in production and 2% as gross value added. Timber industries, including furniture, represented during the latest ten years 5.6% of the manufacturing industry in term of production, despite of decreasing wood removals volume, and 12% in term of employees. The total number of

employees in forest sector represented in 2001 5% of national labour force, furniture included.

The share of forest available for wood supply is almost 90%, according to the public regulation on forest functions. The national reports specified between 7 to 11% of forest affected by restrictions in harvesting for protection purposes, while on the global maps (TBFRA 2000), it appears that this percent is only 4%.

Table 20. The forest area with protective functions

Forest with special protective functions	**53.3% of total forest area**
Waters regime	16.6%
Terrain and soil sensitivity	22.6%
Protection of the environment factors	2.8%
Protection of genetic resources	5.2%
Recreation forests	6.1%

Source: National Forest Administration, www.rosilva.ro

The main restriction on harvesting comes from the accessibility of forest stands. The density of forest roads is 6.1 m/ha, which situates Romania among the latest ranked European countries (Germany: 45 m/ha, Switzerland: 44 m/ha, France: 26 m/ha). Thus, only 65% of Romanian forests are economically and technically accessible. There are 2.2 million ha of forests where the harvesting is not possible because of lack of forest roads.

The share of species on forest area is 31% beech, 30% coniferous, 18% oak, 16% various hard wood species and 5% various soft wood species. Because of availability of wood supply, more precise information of species contribution to the forest economy is provided by the pictures on harvested volumes (Table 21).

Table 21. Harvested wood volume (1000 m^3 – gross volume)

	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Total harvested	14803	14509	12642	13718	14285	13410	13039
coniferous	5751	5836	5195	5564	5346	4915	4983
beech	4266	4263	3635	4115	4509	4260	3786
oak	1658	1489	1276	1358	1333	1288	1295
Other hard wood	1876	1757	1491	1588	1731	1673	1582
Other soft wood	1252	1164	1045	1093	1366	1274	1390

Source: National Forest Administration, www.rosilva.ro, National Statistical Accounts

The reforestation of forest land according to the forest management planning concerned 18.5 thousand ha (0.31% of forest area) in 2003.

Table 22. Afforestations and reforestation (ha)

	1996	**1997**	**1998**	**1999**	**2000**	**2001**
Total	12,727	10,641	10,607	11,863	12,701	13,539
Plantations	12,559	10,479	10,542	11,820	12,640	13,465
coniferous trees	4,184	3,736	4,112	4,931	5,849	6,570
broad-leaved trees	8,375	6,743	6,430	6,889	6,791	6,895
Direct sowings	168	162	65	43	61	74
coniferous trees	12	54	15	8	16	2
broad-leaved trees	156	108	50	35	45	72

Source: National Forest Administration, www.rosilva.ro, National Statistical Accounts

The activity of afforestation (respectively, the change of land from other categories to a forest land by plantation) is very weak. In 2003, the National Forest administration afforestated 1400 ha which have been transferred at this aim from the Agency of Public Domain. The National Forest Administration started an afforestation programme for marginal agricultural lands within Prototype Carbon Fund framework, managed by World Bank. The object is to afforestate 6033 hectares (0.04% of total agricultural land) within 15 years.

5.3. Forest ownership

The forest ownership structure has changed from one third public, one third communal and institution' properties and one third private before the second war to 100% public during the communist period. After 1990, the restitution process started and the ratio between public and private was 95 to 5% from 1993 to 2000. The second restitution law brings the ownership on forest land at 70% State, 13% communes, 8% forest communities, 1% different institutions (churches, schools), and 8% private individuals. There are no industrial owned forests in Romania. Only half of the forests hold by individuals are more than one hectare (average 1.56 ha). The maximum size of private forests is 10 hectares.

Table 23. The ownership structure

Year	**Total**	**State**		**Communes**		**Private**	
		ha	%	ha	%	ha	%
2000	6,366,700	5,873,300	92.2	137,700	2.2	355,700	5.6
2001	6,366,700	5,483,500	86.1	384,000	6.0	499,200	7.9
2002	6,373,500	4,694,900	73.7	702,500	11.0	976,100	15.3
2003	6,384,700	4,443,700	69.6	1,941,000 (30.4%)			

Source: National Forest Administration, www.rosilva.ro

The share of ownership will not change significantly in the next years, as far the restitution process nears it end. In 1990 all forest estate was public ownership. The first restitution law reduced the public ownership by 357.4 thousand ha (5.6% of the national forest estate) and the second restitution law transferred other 1,583.6 thousand ha to the other entities. Now the State ownership represents 69.6% of the forest estate (Table 23). Private forest includes individuals, institutions, and forest communities. The forests holds by communes are in public ownership form.

The right to collect NWFP for recreation or self-consumption purposes is "every man's right", except the game. The law does not regulate formally the issue of public access.

Thus, the picking of berries, medicinal plants and other forest products, as well as the picking of dead timber for fuelwood are popular, historical customs. Nevertheless, the picking is regulated by the National Forest Administration, which can limit the quantity collected per day per individual. The NFA can also create a concession on NWFP for private contractors. The collecting of NWFP from other forests than those managed by the NFA is regulated only when collecting is of commercial purpose.

The ownership clarification will bring a positive input to the whole forest sector in the next years. It is assumed already that the appearance on the market of the timber from communes and forest communities will improve the concurrence and will stimulate the creativity and innovation among timber producers. The size of ownership of private individuals is a limiting factor for small-scale forestry and for enterprise development in rural area.

There is also a need to clarify the rights on non wood forest products. The NFA has now monopolistic position on NWFP collecting and processing. The prices for NWFP, when established on central and top-down way, risk do not reflect the real market value of NWFP, and to be a hampering factor for future private initiative in this field.

5.4. Main problems and research questions in forest resources and ownership for enterprise development in the forest sector

A first impediment for forest industries development was the continuously reduction of volumes of timber available for industry (Figure 17) and the uncertainty related with the quantities annually supplied.

A second impediment is represented by the rules of selling timber as settled out by the Government. The concessions are short time running (one year). Only recently the long term contracts have been introduced, based on the idea that the large companies with harvest and timber processing activities would prefer the long term contracts, which allow them to better investment strategy. On the other hand, the rules themselves for contracting and harvesting changed several time during the last five years. That introduced uncertainty on raw material procurement. A third impediment is represented by the low accessibility level of forest resource. The situation of forest roads implies high cost in harvesting.

Finally, the timber sellers pay little attention to the demand. For example, the selling of timber is based on poor timber shortage system. Firms with particular demand on roundwood quality rarely have the possibility to buy it on the auction. Starting with the year 2000, the National Forest Administration organised auction for high quality logs to address this demand.

Moreover, the legislative framework is rather not permissive to the intensive utilisation of forest resource, e.g. harvesting of timber at lower ages, for pulp purposes is restricted, as well as the use of forest for the intensive production of wild berries, etc.

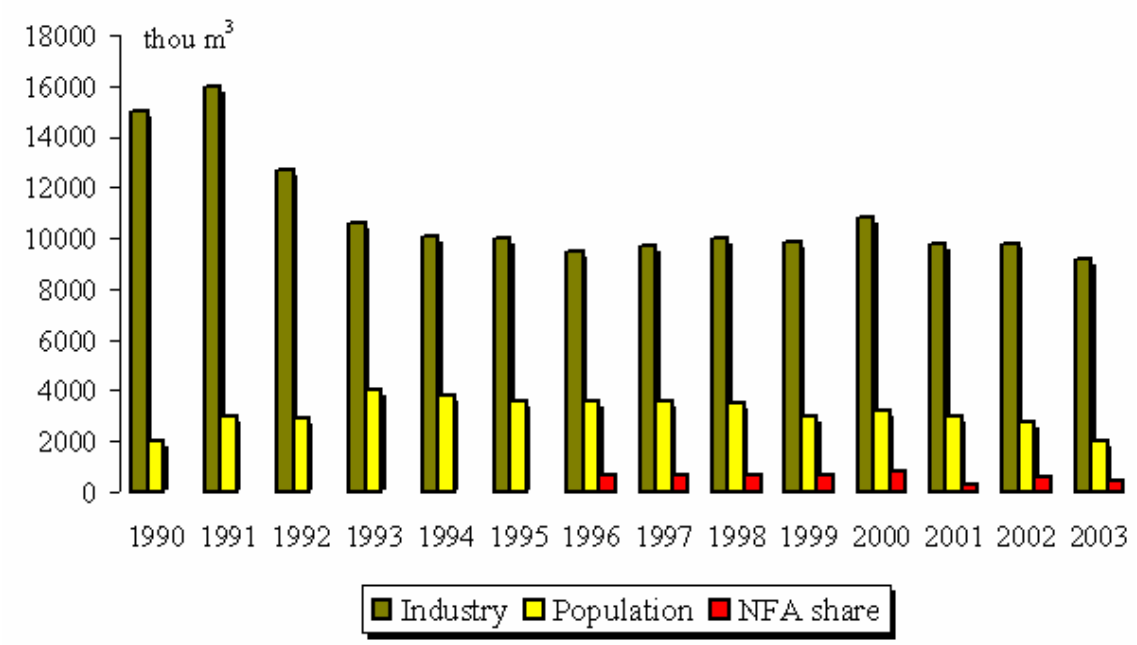

Figure 17. The repartition of harvested volumes by category of forest user

Main problems of enterprise development in the forest sector:

- ownership related: clarification of forest ownership; association of private forest owners to realise scale economies; clarification of rules and procedures of management of private forests;
- market related: the enterprises from forest sector need better knowledge on the demand, particularly on the internal demand; marketing, management of human resources, and innovation should be improved to meet the demand. There is a stringent need to meet/organise/enhance the demand for recreational activities and for NWFP;
- public regulation related: the system of annual allowable cut approval determined the latest years delays on harvesting activities (not in 2004); a second effect is to increase the uncertainty, because introduces new forest users and reduces the quantity of timber available for industrial purposes; the rules for timber selling procedures are not adapted to the diversity of harvesting firms; there is a lot of bureaucracy in keeping records about the firms' debts over the NFA;
- raw material procurement related: there is an artificial "scarcity" of timber resources in the country. Better timber shortage, more partnership oriented contracts and flexibility on the terms of contracts for harvesting should allow the interested contractors to build investment strategy and to improve the timber products utilisation.